IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF VIRGINIA
Norfolk Division

BASF PLANT SCIENCE, LP, Plaintiff, v. COMMONWEALTH SCIENTIFIC AND INDUSTRIAL RESEARCH ORGANISATION, Defendant.	
COMMONWEALTH SCIENTIFIC AND INDUSTRIAL RESEARCH ORGANISATION, GRAINS RESEARCH AND DEVELOPMENT CORP., AND NUSEED PTY LTD., Plaintiff-Counterclaimants, v. BASF PLANT SCIENCE, LP, and CARGILL, INC., Defendants-Counterdefendants.	CIVIL ACTION NO. 2:17cv503

TRANSCRIPT OF PROCEEDINGS
(Jury Trial - Day 14)

Norfolk, Virginia

November 5, 2019

BEFORE: THE HONORABLE HENRY COKE MORGAN, JR.
United States District Judge, and a jury

APPEARANCES:

HOGAN LOVELLS US LLP
By: Nitya Anand
Arlene L. Chow
N. Thomas Connally, III
Una Chiao-Yi Fan
Thomas B. Hunt
Takashi Okuda
Jared Schubert
Anna K. Shaw
Ernest Yakob
Counsel for BASF Plant Science, LP

VANDEVENTER BLACK LLP
By: Richard H. Ottinger
Counsel for Defendants, Third-Party Plaintiffs, and Counterclaimants

KOBRE & KIM LLP
By: Jonathan E. Barbee
Hugham Chan
Matthew I. Menchel
Michael K. Ng
Hartley M.K. West
Daniel A. Zaheer
Counsel for Commonwealth Scientific and Industrial Research Organisation

PORTER HEDGES LLP
By: Miranda Jones
Megan Mon-Ting Luh
Erin C. Villasenor
Counsel for Grains Research and Development Corporation

WILEY REIN LLP
By: Alexander Owczarczak
Teresa Summers
Lawrence M. Sung
Counsel for Nuseed Pty Ltd

FISH & RICHARDSON PC
By: Ahmed J. Davis
Christopher R. Dillon
Elizabeth Flanagan
Daniel R. Gopenko
Counsel for Cargill, Inc.

I N D E X

E X H I B I T S

(Proceedings commenced at 10:23 a.m.)

THE COURT: All right. I believe we're at the beginning of the opponents' case on damages?

MR. DILLON: We are, Your Honor. And the proponents call Dr. Dmitry Gromov.

(The clerk administered the oath.)

THE COURT: All right you may proceed.

DMITRY GROMOV, called by Cargill, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. DILLON:

Q. Would you please introduce yourself to the Court.

A. Good morning, Your Honor. My name is Dmitry Gromov.

Q. And where do you work?

A. I work for Cargill.

Q. What is your job?

A. I am the program lead -- program manager for Latitude.

Q. As the program manager for Latitude, are you familiar with whether or not Cargill has sold Latitude?

A. Yes, I am.

Q. Are you familiar with Cargill's investments in Latitude?

A. Yes, I am.

Q. Are you aware of the financial terms between Cargill and BASF?

A. Yes, I am.

Q. Are you responsible for Cargill's financial projections for the sale of Latitude?
A. Yes.
Q. Before addressing these topics, let's briefly go over your background and let the Court know how you came to become the program manager for Latitude.
Would you please describe briefly your educational background.
A. I have a Ph.D. in chemical engineering from the University of Wisconsin, as well as an MBA from MIT majoring in financial management.
Q. So you have degrees in both economic and technical fields?
A. I do.
Q. Where did you work before joining Cargill?
A. I had a variety of technical and commercial jobs in the petrochemical industry.
Q. When did you join Cargill?
A. In 2004.
Q. When did you become the program manager for the Latitude program?
A. About 2013.
Q. Would you briefly describe for the Court your experience at Cargill before you became the Latitude program manager.
A. I had a variety of technical and commercial jobs, always

aimed at creating new businesses.
Q. And what are your responsibilities as the Latitude program manager?
A. I'm responsible for making plans and making sure that those plans are executed.
Q. How did your prior educational experience and work experience help you with regards to executing your responsibilities as the Latitude program manager?
A. Latitude is a complicated program spanning both technical and commercial areas, and my past experience, both educational and professional, really serve me well in that role.
Q. I'm going to turn to some questions related to the sales activity related to Latitude.
Have there been any sales of Latitude to date?
A. No.
Q. Has Cargill made any offers to sell Latitude?
A. No.
Q. If a potential customer wanted to purchase Latitude, does Cargill have Latitude oil that it could sell to that customer?
A. No.
Q. When will Cargill first create or manufacture the Latitude oil that it would sell to customers?
A. The earliest we expect to have the oil is either very

late 2020 or very clearly 2021.
Q. Can Cargill sell Latitude in the United States today?
A. No, we cannot.
Q. Why is that?
A. We do not have the FDA deregulation.
Q. When do you expect to have FDA deregulation?
A. We hope to achieve FDA deregulation in the first quarter of 2020.
Q. Does Cargill plan to offer a canola omega-3 product for human consumption?
A. We currently do not have any plans to offer it into the direct human consumption segment.
Q. So what is the target market for Latitude?
A. Currently it's exclusively aquafeed.
Q. Does Cargill plan to offer LFK Kumily for sale?
A. No.
Q. How does Cargill use LFK Kumily?
A. Use it a couple of different ways. First of all, obviously, LFK Kumily was the donor of the elite event that we used to put in Cargill parent lines. We also grow -- we've grown LFK as a benchmark crop in the fields.
THE COURT: What does that mean, benchmark?
THE WITNESS: Meaning the benchmark is something that you know how it would behave because you observed the crop for several years, and when you grow a new crop, you

want to compare it to something. And because in the field no two years are the same, it's hard to make comparison between the years. You always have to make a comparison to something that you know well in a particular year, in a particular field. That's the only meaningful way of comparing and measuring what you've created as a new crop. If it makes sense, Your Honor.

BY MR. DILLON:

Q. What have you compared it to? So you said you used LFK as a benchmark. What were you benchmarking against LFK Kumily?

A. Omega-3 content.

Q. But were there specific plants or hybrids that you were using the LFK Kumily as a benchmark for?

A. Cargill has developed two hybrids, which are the plants that carry the elite event from LFK Kumily in the Cargill background, in the Cargill host canola plant. So those are the two hybrid plants that we use to grow -- we grow them, and we measure the performance against Kumily.

Q. Does Cargill have plan to use LFK Kumily in the future?

A. We do not.

Q. We heard a little bit from Mr. Horton about the field trials that Cargill has conducted in Montana. Do you know what Cargill did with the seeds from those field trials?

A. Yes, I do.

Q. What did Cargill do with the seeds that were harvested in 2018 and 2019?
A. A portion of that seed -- actually, the largest portion is still in Montana in storage. A portion was transferred to our Fort Collins, Colorado facility for R&D purposes, and the portion of what has been transferred was turned into oil.
THE COURT: Was what?
THE WITNESS: It was turned into oil, Your Honor. We extracted the oil from a portion of those seeds.
BY MR. DILLON:
Q. And what did you do with the oil in Fort Collins?
A. It was used for R&D purposes. It was used for process development purposes, meaning that to develop a process itself of extracting the oil, as well as to on two occasions the oil was sent to other R&D facilities.
Q. And what were those R&D facilities that you send the oil to?
A. We sent a sample of the oil to BASF facility in Norway. That facility engages in refining and concentrating fish oil. The other sample went to the University of Idaho, and there it's going to be used to make feed for freshwater trout.
Q. Did you receive any money from BASF or the University of Idaho?
A. No.
Q. Has any oil from the 2018 or 2019 harvests been sold?

A. No.
Q. All right. Dr. Gromov, we're going to change subjects and talk a little bit about the BASF/Cargill commercial arrangement. Are you familiar with that?
A. Yes, I am.
Q. If I could ask you in your binder you have in front of you to turn to the tab that's marked JX-59, please.
And, Your Honor, this has already been admitted into evidence. May I proceed, Your Honor?
THE COURT: Yes.
BY MR. DILLON:
Q. Are you familiar with this document?
A. Yes, I am.
Q. And what is it?
A. This is a commercialization agreement between -- or development agreement between Cargill and BASF.
THE COURT: This is a modification or this is --
MR. DILLON: This, Your Honor, is the first amendment to the commercialization agreement.
THE COURT: All right.
BY MR. DILLON:
Q. Under the terms of this agreement, Dr. Gromov, when must Cargill pay BASF related to its sales of Latitude?
A. We will start paying BASF the year the project -- program Latitude turns positive in the earnings. Until then, there

will be no payments.
Q. Do you have a name for those payments?
A. We call them profit share payments.
Q. If you could turn to Section 8.2, which is at the Bates range ending 905, and it's on the screen. It's been highlighted if it's a little easier to read.
A. Yes.
Q. Do you recognize this section?
A. Yes, I do.
Q. What is this?
A. This section specifies the payment that Cargill will be making to BASF.
Q. Okay. Could you read the first sentence, please.
A. "Cargill shall pay BASF 40 percent of all positive product EBIT in United States dollars."
Q. What is E-B-I-T?
A. E-B-I-T or EBIT is a commonly used abbreviation for profit measure. It stands for earnings before interest and taxes, meaning that's the profit that is available to you before you've paid taxes to the government and interest to your bankers.
Q. When does Cargill anticipate making its first profit share payment to BASF related to Latitude oil?
A. We anticipate to make the first payment in 2023.
Q. And why won't you make a payment before 2023?

A. We do not expect to turn profit until 2023.
Q. Why do you not expect to make a profit before 2023?
A. For a couple of reasons. First of all, while we're gaining the scale, while we're too small, it's hard to make money. So that's going to hold us back as we get bigger. The other reason is that by 2023, we expect that our second generation product is going to be produced.
Q. What is that second generation product?
A. You may have heard of Project Boost. That refers to the result of that project.
Q. And I'm not sure the Court has heard enough about Project Boost. So could you explain briefly what Project Boost is and why there's a difference between Generation I and Generation II of Latitude?
A. As you put elite event into various parent line backgrounds, what you observe is that sometimes there is actually an increase in expression level for omega-3. And so you want to target those types of parent lines. As a result, if you're smart about choosing those hosts for the event, you end up with a plant that actually produces much more omega-3 than you started with.
Q. And how much omega-3 does the first generation of Latitude have?
A. We expect to produce about 12 percent omega-3, the first generation.

Q. And what is your expectation regarding the second generation?
A. We hope to show 18 percent, Your Honor.
Q. And when will that occur?
A. We believe it will occur in 2023.
Q. And is that work that's being done with Boost work that's being done by Cargill or by BASF?
A. All of the Boost work has been done by Cargill.
THE COURT: When you say 18 percent, is that DHA or EPA or both or what?
THE WITNESS: We refer to the combined amount. Our oil is largely EPA, Your Honor, but when we say omega-3, from now on I refer to the combined value of those two fatty acids.
THE COURT: Why do you have the majority of it in EPA instead of DHA?
THE WITNESS: The pathway that we chose to use gives us this split between EPA and DHA. While I'm not a scientist, I believe there is no way of changing that.
BY MR. DILLON:
Q. Has Project Boost boosted both the EPA and the DHA, or does it affect one versus the other?
A. It boosts all of them approximately in the same manner. So the sum goes higher, but the relative amounts stay more or less stable.

THE COURT: What is the relative percentage?

THE WITNESS: In the Generation I, we're looking at about 11 percent EPA and probably 1 percent DHA. I'm rounding up. Roughly 10 to 1. Rounding up, Your Honor.

BY MR. DILLON:

Q. Just to back up a moment, we're talking about the 2018 and the 2019 seeds that were used in the field trials. Although you sent some of that oil to BASF in Norway, did you make any profit share payments related to the delivery of that oil?

A. We did not.

Q. And why is that?

A. Those were not sale of the product.

Q. Under this BASF/Cargill commercialization agreement, how is the profit split between BASF and Cargill?

A. BASF gets 40 percent of all positive EBIT and Cargill gets 60 percent of all positive EBIT.

Q. Why does Cargill get more of the profit than BASF under this agreement?

A. While I was not part of the initial negotiation, I believe that that's the result of the arm's length conversation between BASF and Cargill, and this split reflects the relative value that both companies bring to the program.

THE COURT: Well, what does the 40 percent here mean

if they're splitting it 60/20? Is that what you said? 60/20?

THE WITNESS: 60/40, Your Honor.

THE COURT: 60/40. Okay. But the 40 percent doesn't start until it becomes profitable?

THE WITNESS: That is correct, Your Honor.

THE COURT: So how many -- I mean, you're assuming it will be profitable in --

THE WITNESS: 2023.

THE COURT: -- '23. When do you expect to start selling it?

THE WITNESS: In 2021.

THE COURT: So the third year of sales, you expect it to become profitable?

THE WITNESS: We hope that's going to be the outcome, Your Honor.

THE COURT: I've seen charts on the projected profitability. I don't know if those were BASF documents or Cargill documents.

MR. DILLON: Your Honor, we're going to be going through with Dr. Gromov two of those charts. They're Cargill documents that he created. One relates to the cost to manufacture the product, and the other relates to the projections as to when they'll be selling it and when it becomes profitable. So we'll be getting to that shortly in

this examination.

THE COURT: All right.

BY MR. DILLON:

Q. Before we turn to that, I'd like for the Court to understand a little better the 60/40 split. We've heard a lot in court about the BASF elite event and the genetics associated with that, but I don't know that we've heard as much about the Cargill piece. So I want to ask you some questions now, Dr. Gromov, about the Cargill added value.

If you could turn in your binder to what's been premarked as PX-870. This document is not yet in evidence. Do you recognize this document, Dr. Gromov?

A. I do.

Q. What is it?

A. It's a PowerPoint presentation.

Q. Is this a document that Cargill created and maintains in the ordinary course of business?

A. Yes.

MR. DILLON: Your Honor, I move to admit PX-870.

MR. SUNG: No objection, Your Honor.

THE COURT: All right. PX-870 will be admitted.

(Exhibit PX-870 received in evidence.)

BY MR. DILLON:

Q. If we could turn to Page .002, and it's also displayed on your screen there, Dr. Gromov.

A. I can see it.
Q. Are you familiar with this chart?
A. Yes.
Q. And briefly could you describe what this chart represents?
A. At the high level, this chart represents the areas of responsibility that BASF and Cargill take on in program Latitude.
Q. I want to start with the green box that's the farthest to the left, so right next to the BASF line. Do you see the one that says "plant breeding"?
A. Yes.
Q. What is plant breeding?
A. Plant breeding is a process of combining two parent lines of a plant, canola in this case, with the hope of producing a better performing child plant, both hybrid.
Q. How does plant breeding add value to Latitude?
A. Plant breeding is essential for Latitude. The reason being is that when you produce a hybrid plant, a child plant, those plants tend to show better performance in the field, meaning they yield better. They're more stable year over year in location to location.

As a result, the farmers that you want to work with are able and willing to do that. If you do not give them a good plant, they will not come back to you the next year to

grow your crop again.
Q. Is yield important to farmers?
A. It is probably one of the single most important variable to the farmer. It's what the crop is going to yield.
Q. And does having a hybrid have an impact on the yield?
A. Yes, it does. Hybrid plants yield more and they yield more stable out.
Q. And how is yield measured?
A. In the canola case, it is measured in something that is call bushels per acre, which is a measure -- bushel is a measure of volume. It's about 50 pounds.
Q. Earlier you were talking briefly about Project Boost. Where would Project Boost show up on PX-870.002?
A. It would be part of the plant breeding box.
Q. How long has Cargill been working on Project Boost?
A. We have started as soon as we received the elite event from BASF.
Q. Is the process --
THE COURT: I'm sorry.
THE WITNESS: We started as soon as we received the elite event from BASF.
BY MR. DILLON:
Q. And when was that?
A. I believe it was in 2015.
Q. Is the process for Project Boost complete?

A. No. Project Boost is a set of ongoing activities. It's never going to be stopped. So this R&D spin line will always be present in our financial projections, as you'll see when we get to those.

Q. How does Boost add value to project Latitude?

A. The reason Latitude oil is more valuable than regular canola oil is because it has omega-3 in it.

THE COURT: Because it has what?

THE WITNESS: It has omega-3 in it, Your Honor. And in the marketplace, oils with more omega-3 are valued higher than oils with less omega-3. For example, in oil with 18 percent omega-3, it will be valued higher than the oil with 12 percent omega-3 because that's why people buy these oil for.

BY MR. DILLON:

Q. How much omega-3 is in fish oil?

A. Fish oils differ in omega-3 content. The best fish oils can go up to 30 percent. You can always buy fish oils with as low as 10 or 12 percent omega-3.

Q. So how does -- I think with the Generation I you said it was about 12 percent?

A. That's correct.

Q. And Generation II would be about 18 percent?

A. That is correct.

Q. How does going from Generation I to Generation II

increase the value of Latitude?
A. Each percentage point of omega-3 concentration, content has a dollar value to it, measured in dollars per metric ton. What we observe in the marketplace, that value is between $30 and $50 per metric ton. So if you take midpoint, let's say we take $40 per metric ton, and then you go from 12 percent to 18 percent omega-3, you're adding 6 points. At $40 you're adding $240 to the value of your oil while keeping your production costs the same, Your Honor. So that $250 per metric ton goes to your profit.
Q. Why do the production costs remain the same?
A. Because you do not do anything different from the -- with the plant that produces 18 percent oil that you would have done with a plant that produces 12 percent oil. The processes are identical, so, hence, your costs are the same.
Q. Earlier the Court heard a little about the field trials that Cargill has conducted from Mr. Horton. Are you familiar with those field trials?
A. Yes, I am.
Q. All right. And why does Cargill conduct field trials related to the Latitude product?
A. As we mentioned before, when you talk to a farmer, asking him or her to grow a crop for you, the first question they would have is, well, how much am I going to get out of it? And the key driver in how much they're going to get out of it

is how many bushels per acre of canola they're going to be getting.

So before you can persuade them to work with you, you have to persuade them that what you have to offer actually performs well, which takes the form of writing multiple field trials, demonstration trials, if you will, in various locations in the target area and for several years to make sure that they get a complete picture, because the weather is unpredictable.

Q. Where do these field trials show up on PX-870.002?

A. They will be part of plant breeding box.

Q. By the way, do farmers care about the percentage of omega-3 in the seeds?

A. They would not. A percentage omega-3 in the seeds, this is something that Cargill would care about because this is how we get paid. A farmer gets paid on the bushels per acre. So in a way, he could care less about how much omega-3 is in that seed, or, frankly, if there's any omega-3 in the seed. He just cares about bushel per acre.

Q. Who cares about the amount of omega-3 in the seeds?

A. Cargill does, and then people, our customers would. People who buy the oil that comes from those seeds will be paying more for the oil that has more omega-3. It will be more valuable.

Q. Dr. Gromov, are you familiar with the term "closed-loop

production"?
A. Yes, I am.
Q. What is closed-loop production?
A. A closed-loop production is a way of producing a crop, a product in agricultural setting, making sure that the whole process stays separate from the very beginning to the very end. What I mean by that is, as you produce, you're using different fields, you're using different silos, you're using different trucks and rails, and you also process the output in a certain way in the processing plant.
Q. And does Cargill have experience with closed-loop production?
A. It does.
Q. And can you give an example of a product that you've produced with closed-loop production?
A. Cargill has been in the business of producing what is called a high oleic canola for over 20 years. High oleic canola oil is a type of oil, is a canola oil that's very good for frying application. So the next time you go and you buy a French fry, it's very likely that that French fry was done with high oleic canola oil.

And like I mentioned before, Cargill has been in their business for over 20 years, and I'm thinking maybe even closer to 25 years at this point.
Q. Why does Cargill use closed-loop production with its high

oleic canola oil?
A. Because it wants to keep the final product separate from the -- from regular canola because it has a different property, has a different value in the marketplace. You have to keep it separate, hence, you have to use the closed-loop production system.
Q. Do any other companies use closed-loop production for canola?
A. I'm not aware of anybody who would do it the same way as Cargill.
Q. If I could ask you to turn to CX-0480.
A. I'm there.
Q. Do you recognize this document?
A. I do.
Q. What is this?
A. It's a PowerPoint slide.
Q. Is this a document that Cargill created and maintains in the ordinary course of business?
A. Yes.
MR. DILLON: Your Honor, I move to admit PX-0480.
THE CLERK: CX?
MR. DILLON: I'm sorry, CX-0480.
THE COURT: CX, right.
MR. SUNG: No objection, Your Honor.
THE COURT: All right. That's admitted.

(Exhibit CX-0480 received in evidence.)
BY MR. DILLON:
Q. If you could turn to CX-0480 at .008.
A. I'm there.
Q. What is this?
A. It's a visual representation of a closed-loop production system. That is all of the steps that a company needs to make before it can turn the planting seed into the final product.
Q. Could you walk the Court through each of the steps here in the closed-loop production process, please.
A. To start making a specialty crop, you have to start with a specialty planting seed. So you have to produce planting seed, and that's what is depicted in the first box, a bag of seeds. Once you've created those bags of seeds, you sell those seeds to your farmer who is going to be growing this crop for you in a separate field.

Then you purchase the grain from the farmer, and then now it's yours. Now you have to move and store the grain the way you see fit, and, ultimately, the grain ends up being delivered to the processing plant, which we call crush plant. This is a plant where oilseed or grain is going to be squeezed and crushed into two components; oil and meal. And once you've done that, you have to take care of the logistics of the oil, which is the final product. In this case, it's

taken to a port where it's sold.
Q. How do the costs of closed-loop production compare to the normal costs of producing canola?
A. They're always higher.
Q. Why is that?
A. Because they have to do things differently because you have to use different silos, different fields. You have to make sure that the product always is segregated from the bulk of your production -- not your production, other people's production, and that all adds cost at every single note in this visual representation.
Q. Is closed-loop production necessary for Latitude?
A. Yes, it is. That's the only way we can produce something like Latitude.
Q. And why is that?
A. Because our goal is to produce oil that would be on itself very separate from the other regular or generic canola oil, that our oil will not have any of the generic canola oil, and on the flip side, that the generic canola oil will not have any of our oil. So really making sure that the whole production is separate from the field to the storage to transportation to crush.
Q. If we could turn back, Mr. Sparks, to PX-870.
Dr. Gromov, is closed-loop production depicted on PX-870.002?

A. Yes.
Q. Where is that?
A. It would be in the boxes called seed production, contract production, and crush and refining.
Q. How does closed-loop production add value to Latitude?
A. As I said before, it's the way you have to do it, and without closed-loop production system, which is an efficient closed loop production system, you cannot produce Latitude.
Q. On PX-870 there's a box titled "product development." What does this refer to?
A. It refers to making sure that your oil works in the fish feed application.
Q. And is fish feed the product that you're developing for Latitude?
A. Yes. That's the target market for Latitude.
Q. All right. Did Cargill do any testing to determine whether Cargill's omega-3 canola works as a fish oil substitute in fish feed?
A. Yes, we did.
Q. And what do those tests show?
A. Those tests show that we can replace all fish oil in the fish diet without any detrimental effect on fish performance or health. So all of the fish oil can relates to Latitude.
THE COURT: Have you tested them in fish other than salmon?

THE WITNESS: No, we did not, Your Honor. Take it back. Shrimp study was done at the University of Auburn that showed similar results that we could go almost all the way to replace the fish oil. I think in shrimp we could replace up to 75 percent of added fish oil.

BY MR. DILLON:

Q. And I think earlier you mentioned that there was some work ongoing with regards to trout; is that correct?

A. That work is ongoing. I do not have the results for that work yet.

Q. If you could stay in PX-870 and just turn the page to .003. Do you recognize this chart?

A. Yes.

Q. Would you briefly describe what this chart shows?

A. It shows a summary of fish feeding results where we -- we've taken a commercial fish diet, salmon in this particular case, replaced all the fish oil with Latitude, and observed trout -- we're looking for any differences. Bottom line, we didn't see any. Fish was gaining weight the same way in both cases. Fish was just as healthy in both cases. And the mortality rate was the same in both cases. So the conclusion from that study was that a complete replacement of fish oil with Latitude is possible.

THE COURT: So Latitude behaved the same as fish oil?

THE WITNESS: That is correct.

THE COURT: Not better, not worse, the same?

THE WITNESS: That is correct.

THE COURT: But the fish oil varies in percentage of EPA and DHS, depending on the fish or what?

THE WITNESS: Yes, you're correct. It depends on the fish species, also depends on the year. The results are unpredictable. Some years it will be one level; some years it will be another. But the major variability comes with the species. Some fish will have higher omega-3 oils, like anchovy. It will be always higher than menhaden. That's always true, but the exact numbers will be dependent on the season.

BY MR. DILLON:

Q. What are some of the fish that are used for fish oil?

A. First and foremost is anchovies in South America, and then closer to home it's menhaden caught in the Gulf of Mexico and in the Atlantic Ocean. And if you go to Europe, you start looking at fish like capelin and eel, sardines, stuff like that, usually smaller fish that we do not like to eat. Fatty, bony fish are the best ones to go for that.

Q. If we could turn back one page to 870.002. In addition to manufacturing Latitude, is Cargill responsible for the marketing and sales of Latitude?

A. Yes.

Q. And is this depicted on PX-870.002?
A. It would be in the last box called sales and distribution.
Q. What is involved in sales and distribution?
A. Finding the customers, talking to them, understanding their needs, and providing a solution to their needs. Really, it's selling the product.
Q. Are there any other areas of value created by Cargill that are not generally described in 870.002?
A. Yes.
Q. And what is that?
A. The value proposition relates to Cargill's ability to offer omega-3 ingredient at a predictable cost rather than the current solution, which is fish oil, which is unpredictably priced.
Q. Why is that valuable to customers?
A. It's extremely valuable to fish farmers because to raise, let's say, salmon as an example, salmon spends about 12 to 18 months at sea in the cages. They are also called net pens sometimes.

And for all this time, you have to feed the fish. So it's un -- not unlike land animals, so large amount of fish. You've invested money. You've got to feed them. Your feed costs are about 60 to 65 percent of your overall production costs, and situation where you actually do not

know how much it's going to cost you to feed the fish adds volatility, adds unpredictability to the farmer's cost to production, and nobody likes that.

Q. How is Latitude able to mitigate that volatility?

A. To understand that, let me step back, maybe talk about how fish oil is made. Fish oil is made by a fisherman going fishing in the ocean, and then they may or may not catch fish, depending on the situation. If there is not enough fish or there is no fish, then there's no fish oil. So the supply of fish oil is very unpredictable, which is reflected in its price.

The approach that Cargill takes is farming, which is much more predictable than going fishing in the open ocean. We know how many bushels we've planted. We know how the hybrids are going to perform. There's very little volatility in the output volume, so we can start talking about predictable volume and predictable price.

Q. If you could turn to what's been previously marked as PX-877. Do you recognize this document?

A. Yes.

Q. And what is it?

A. It's a PowerPoint slide.

Q. Is this a document that Cargill created and maintains in the ordinary course of business?

A. Yes.

MR. DILLON: Your Honor, we move to admit PX-877.

MR. SUNG: No objection.

THE COURT: PX-877 will you admitted.

(Exhibit PX-877 received in evidence.)

BY MR. DILLON:

Q. Dr. Gromov, if you could turn the page to Page .003.

A. I'm there.

Q. Could you please explain to the Court what this chart represents.

A. This chart represents a trajectory of fish oil price between 2010 and mid-2018. The major takeaway from this price chart is that the fish oil price is extremely unpredictable and volatile. In the span of a few months the price can go from $1,300 to $2,700 and back, and that's the main takeaway from this chart.

Q. And in comparison to fish oil, what is the relative predictability of the costs associated with Latitude?

A. It's much, much, much more predictable. In a way, we can almost know for sure what it's going to be if we price the grain to the farmer correctly.

Q. Okay. If we could turn back briefly to PX-870.

Dr. Gromov, we've talked about the activities in green. Just briefly I want to talk a little bit about the activities in blue.

Are you familiar with the areas of value created by

BASF for the Latitude project?
A. Yes, I am.
Q. And what are those areas?
A. The two major areas are genetic engineering, which is creating the elite event, LFK Kumily event; and the second step is achieving global deregulation of this product.
Q. And why is global deregulation important to Latitude?
A. Latitude business is expected to be global, and global deregulation means that we are able to sell the product in more countries than one, in many countries, essentially enabling us to sell in many different geographies.
Q. Once BASF delivered the elite event to Cargill, did BASF have any ongoing technical responsibilities for the development of Latitude?
A. No.
Q. How about with regards to the manufacturing or production of Latitude? Does BASF have any ongoing responsibilities for those activities?
A. It does not.
Q. And with regards to sales and distribution, does BASF have any responsibility?
A. No.
Q. Dr. Gromov, I want to talk a little bit more with you about the market for Latitude. In preparation for your testimony, have you prepared a demonstrative related to the

omega-3 market?
A. Yes, I have.
Q. All right. If we could call up demonstrative PDX-1304.
What does this chart represent or depict?
A. It's a visual representation of a fish farming industry.
Q. Okay. What are the various layers or levels that we see in this chart?
A. What you see on this chart, if you start from the very bottom, you see that there is a fair amount of fish farming companies. The amount is not huge, but it's not very small either, and the fish farming companies are supplied by much smaller amount -- much smaller number of fish feed companies like Cargill, Biomar and Skretting, which is a middle layer in the chart. And those feed manufacturing companies source their omega-3 from a lot of different suppliers. Most of them are a fish oil companies, and I'm talking dozens of suppliers here.
Q. Who are the potential customers for Latitude?
A. That would be the middle layer. That would be the feed suppliers, companies like Cargill, Biomar, and Skretting.
Q. And you mentioned one of those is a Cargill company?
A. Yes. It's -- now it's an internal division. It's a group in Cargill, we use the abbreviation CQN.
THE COURT: It's part of Cargill now?
THE WITNESS: I'm sorry, Your Honor?

THE COURT: You said somebody is part of Cargill?

THE WITNESS: Yes. In 2015, Your Honor, Cargill acquired a salmon feeding company called EWOS.

THE COURT: EWOS?

THE WITNESS: Yes. Which is part of Cargill now.

THE COURT: So it's not on the chart?

THE WITNESS: Right. Because it's Cargill now, Your Honor.

THE COURT: So it acquired a competitor or a customer?

THE WITNESS: Exactly.

THE COURT: Which?

THE WITNESS: So today a division of Cargill is a potential customer for us, for Latitude.

THE COURT: So they were a fish farmer?

THE WITNESS: No, they were fish feed manufacturer, Your Honor. They made the feed.

THE COURT: Fish feed manufacturer. Okay.

BY MR. DILLON:

Q. So in that middle layer, Dr. Gromov, where you have the major feed suppliers, where it says "Cargill, before 2015," would that have been EWOS?

A. In the center space, yes, it would have been EWOS.

Q. And if Cargill had not acquired that company, they would effectively be a potential customer for the Latitude project,

correct?
A. Yeah. They would be the same customer except it would be a company called EWOS. Now it's part of Cargill. So it would be the same people potentially buying our product.
Q. So I think the Judge's question, Cargill acquired a potential customer of its product; is that correct?
A. That is correct.
Q. Okay. There are a number of arrows on this chart down at the bottom. What do those represent?
A. What these arrows are meant to represent is that farming companies buy feed from several feed suppliers. I'm not aware of any exclusive agreements in this industry. It's very fluid. It's very competitive. And the arrows that you observe here change every year, possibly every quarter. Who buys from whom and how much changes all the time.
Q. How long has Cargill been in the aquaculture business?
A. Cargill has been in the aquaculture business for many years, and with the acquisition of EWOS in 2015, it just entered into what is called the cold species market, which is salmon in this case.
Q. Are you familiar with the feed suppliers depicted on PDX-1301?
A. Yes, I am.
Q. How are you familiar with them?
A. I met with them.

Q. Have you visited their facilities?
A. No. I'm not -- not their facilities. I visited facilities of Cargill.
Q. And are you familiar with the fish farming companies?
A. Yes, I am.
Q. How are you familiar with them?
A. I met with them, and I've seen their farms.
Q. Since Latitude is not yet available in the market, what are the fish feed manufacturers using today for omega-3 oil?
A. It's pretty much fish oil. 99 percent of all omega-3, 98 percent, maybe, is fish oil. There's also some small amounts what -- of what is called alga oils, which is a result of extracting the oil from certain marine algae plants, but the vast majority is still fish oil.
THE COURT: Well, does all of the fish feed that these salmon farmers buy, does it all contain omega-3?
THE WITNESS: Yes, it does, Your Honor.
THE COURT: But at this point it's all from fish oil?
THE WITNESS: In my estimate, 98 percent of it is probably at least -- is probably fish -- fish oil.
THE COURT: Okay.
BY MR. DILLON:
Q. You mentioned alga oil. What is the relative price of alga oil to fish oil?

A. Alga oil is much more expensive than fish oil. My best estimate today, alga oil is being offered at two to three times more than fish oil to these feed manufacturing companies. It's much more expensive.

THE COURT: Well, why is there a market for it if it's so much more expensive?

THE WITNESS: There is a marketing story that goes with it. Some companies use it as a headline of being more sustainable than the others, and they try to differentiate the product this way, hoping to either raise the price or maybe possibly gain more volume in the marketplace by saying essentially my fish is better than yours because I use these novel ingredients that do good.

THE COURT: Okay.

BY MR. DILLON:

Q. All right. Do the fish feed manufacturers depicted in the middle have a single source for omega-3 oil?

A. They do not. In fact, they buy from dozens of suppliers. There's literally many, many fish oil companies around the world, and with the buyers for fish oil and these fish food manufacturers travel the world, and they make deals with everybody at any given time, and they could be buying locally. Next month, they could be buying from Mexico. Next month they could be bringing some product from the U.S., a menhaden product, a menhaden oil. So it's really largely

price-driven behavior that these guys exhibit.
Q. What types of contracts exist between the feed suppliers and their omega-3 suppliers?
A. Those are usually short-term contracts. They go out for a few months at the longest, and there's also some spot sales.
Q. Have you had any discussions with the fish feed suppliers about the types of contracts you would hope to have for Latitude?
A. Yes, we did. We started off with trying to get a longer term contract, maybe like 18 -- I'm sorry, like 36 months, three-year contract. We did not get much interest on that proposition.
Q. And why is that?
A. I'm not quite sure. I believe that the reason being is that we are new ingredients, and these buyers, the customers, they want to be careful, and they will not be buying something novel that they haven't tried in their operations for several years on a long-term contract. That was my best guess why it didn't work.
Q. When Cargill begins selling Latitude, who will be Cargill's competition?
A. It's going to be everybody who sells omega-3 solutions. Fish oil companies come to mind because that's where the bulk of the omega-3 comes from. They're the price setters. Once

they competitively develop fish oil price, you cannot veer too far from the benchmark. You have to be reasonably close if you want to move volumes of your product. So it will be very much looking at fish oil pricing when we go in.

Q. Will Cargill's competition be limited to just plant-based omega-3 suppliers?

A. No. No. Because the customers that buy omega-3, they buy from various sources, and they like to buy from various sources. They like the variety. They like being able to get in and out of the supplier. They do it all the time. That's how they do business.

Q. Is there an advantage to being the first company to launch a plant-based omega-3 oil solution?

A. No. I don't believe that. I do not.

Q. Why?

A. The way customers buy omega-3 ingredients is very fluid. They change suppliers very frequently. They change the relative splits of their buying between suppliers all the time. There is no brand loyalty in that line of business. It's very transactional. So I don't see how the first mover advantage would be manifesting itself in this environment.

Q. Do you know how much fish oil these fish farming companies purchase each year?

A. I can try and estimate. Salmon is -- why we talk about salmon, Your Honor, all the time is because it's the largest

user of fish oil in omega-3 on the earth. My estimates put the use in salmon industry at about 400,000 metric tons a year of fish oil, and then you have to add it to another, probably, 250,000 metric tons of fish oil used to feed other fish and shrimp for a total of 650,000 metric tons of fish oil in the aquafeed industry.

Q. When you launch Latitude, how much do you expect to produce?

A. In 2020, we have budgeted now to produce about 2,100 metric tons of fish oil equivalents. That is 2.1 thousand metric tons.

Q. And by the year 2025, what is your projection as to the quantity of fish oil equivalent omega-3 oil you'll produce?

A. We project to ramp it up to about 35,000 metric tons of fish oil equivalent by 2025.

Q. Is there an unmet demand today for fish oil?

A. I believe so.

Q. Why is that?

A. After talking to fish farmers and fish feed manufacturers, it's pretty clear to me that the current use of omega-3 in the feed is insufficient. Because fish oil supply is constrained, and the industry was growing so fast, they had to reduce the including rate of fish oil in the field, and they went too far.

In fact, this farm salmon today that we buy has

about a half of omega-3 it used to have 20 years ago for that very reason.

The other observation is that operations guys in the fish farms, people who run those cages, people who feed the fish, people who are responsible for harvesting the fish, they believe that the inclusion rate of omega-3 in the fish feed needs to go higher from where it is today because they're seeing some negative effects already in the cages.

THE COURT: Because what, now?

THE WITNESS: Because there's not enough omega-3, the fish is not as healthy as it should be. The mortality is a little higher than it should be. It doesn't grow quite as fast as it should be, and it doesn't recover from stresses like diseases, parasites, quite as good as it could have.

BY MR. DILLON:

Q. You used the phrase "inclusion rate." What is that?

A. What I was trying to say by that is how much omega-3 on the, let's say, percentage basis is in the fish feed.

Q. And you mentioned that it had dropped about half. About how much --

A. Over the last 20 years, it dropped by a lot. Twenty years ago, every single drop of -- essentially, every single drop of fat that would go into fish feed was fish oil. Today, it's only one-third of it. The two-thirds of the fat that goes into fish feed is something else. It could be

regular canola oil. It could be palm oil. It could be poultry fat, things of that sort. But the fish oil, including fish oil yields in the feed manufacturing, has gone down dramatically over the years.

Q. How is the demand to fish oil expected to change in the future?

A. We expect it to grow, and the reason being is that aquaculture is really a young industry. It really started being noticeable 30, 40 years ago. Before that, every single fish or shrimp we would eat would be wild caught. So it's young. It's growing fast. So the demand for fish oil, we expect, will grow.

Q. If there is this unmet demand for fish oil, why aren't you ramping up your production faster?

A. There's only so fast you can go. With a new crop, you need geography where nobody knows how to grow it. You have to do things the right way, making sure that when you work with the farmers, they're happy. The worst thing you can do is you go in and you do not deliver what you promised to your farmers, then it's going to be very difficult to recover your reputation.

So the projections, Your Honor, you're going to see in a few minutes are really based from -- based on Cargill's ability to scale up those acres, those metric tons as quickly as possible.

Q. Dr. Gromov, what impact do you believe other plant-based omega-3 suppliers will have on Cargill's business?
A. I do not see any impact, frankly, because what I watch every day, I watch fish oil price. That's what sets the value of my product. That's what -- I'm rooting for fish oil to be more expensive, because that will bring the value up on our product. I don't spend time thinking about what other people price their products at.
Q. Is the market large enough for more than one plant-based omega-3 supplier?
A. I believe so. The estimates I've seen for the growth in unmet demand are substantial, and certainly, if you look at Cargill's projections, we're not capable to meet all of that by ourselves. So I believe there's room for more than one player, absolutely.
Q. You mentioned pricing. Do you have a price today for Latitude oil?
A. We do not.
Q. And why is that?
A. We have not priced it to any customers yet.
Q. When it launches Latitude, how do you expect to price the product?
A. After many conversations with the industry players, we've come to realize that to move any sizeable volume, we have to price at a slight premium to fish oil, at best.

Q. What is the current price for fish oil?
A. As you've seen from the chart, it's very volatile. Current price of fish oil, I think it's fair to say, is in the area of $1,850 a metric ton.
THE COURT: You say that your price is going to be more than fish oil, but --
THE WITNESS: But not much, Your Honor.
THE COURT: Well, fish oil is very volatile, so, I mean, why wouldn't your price be more one year and less the next year, depending on the -- what's the word -- volatility of the fish oil price? It would seem that yours would be less or more, depending on what fish oil was.
THE WITNESS: You're correct, Your Honor, but when we sign a contract -- let's say we sign a contract today for delivery in 12 months. That's where we fix the price, based on today's range of fish oil, not when we sign the next contract. That price will be different, depending on where the market takes fish oil a year from now. So there will be contracts at different price levels, but once you sign it, it's binding; the price is fixed.
THE COURT: All right. But as time goes on, it will be -- your production costs of the fish oil will go down, will it not?
THE WITNESS: I'm sorry, Your Honor. The production cost of fish oil?

THE COURT: The price of production of your fish oil should go down, adjusted for inflation.

THE WITNESS: Yes. You probably are referring to the scale effects?

THE COURT: Yeah.

THE WITNESS: Yes, we expect some improvement. It's not -- we don't believe we're going to see a drastic improvement in our cost of production because of the way we chose to do that in Montana, in the global supply chain. We may -- I fully expect that we're going to be seeing some improvement, but it's not going to be very drastic, in my --

THE COURT: Why would you choose Montana as the place to grow it? I know that both you and the proponents have chosen Montana. What is it about the climate there that caused you to choose it?

THE WITNESS: We chose Montana, Your Honor, because essentially -- I'll sum it up. You can grow canola in Montana, and yet nobody does, or hardly anybody does. And the reason we wanted to have a place like that is we wanted to be separate from the ocean, of the other canola, to make sure that our product doesn't get contaminated from external canola, and the external canola does not get contaminated by our product.

Those are -- we call them stewardship considerations. They're actually a good chunk of our

increased cost of production, making sure that Latitude does not end up being in the generic canola trade flows before we achieve global deregulation. Because the scenario that we are working very hard to avoid -- and we incur costs as we do that -- is a scenario where, let's say, a boat with Canadian canola ends up being destined for, let's say, Japan, and while Japan is still deregulating Latitude, somebody finds a trait in that boat. We will be endangering a whole canola trade flow from that perspective.

This is why when Cargill defines the global supply chain, we'll really spend a lot of time and money making sure that that risk is minimized.

THE COURT: Well, then you could grow canola in virtually any climate in the world, then, if you can grow it in Montana? I understand why you wouldn't, but I mean, as far as the agriculture potential, you could grow it anywhere.

THE WITNESS: Almost anywhere, Your Honor. The -- the results may vary, right, but you'll get some seed. You may not like the yield.

But you're absolutely right. Montana -- there's nothing magic about Montana. You can grow canola in North Dakota. Indeed, this is where in the U.S. people grow quite a bit of canola. North Dakota is a state where you will grow canola, not Montana. There's a bit in Washington. There's a bit in Colorado. There are also some people who grow in the

south. They call it winter canola, so they plant over the winter in Georgia and Texas. But those are very small, almost irrelevant, volumes, Your Honor. So Montana is not magic, if that's what you're getting at.

THE COURT: That's what I'm getting at, yes.

All right.

BY MR. DILLON:

Q. Dr. Gromov, what is grown in Montana right now?

A. Montana is known for growing, first and foremost, wheat and barley. There's a bit of alfalfa hay, there's chickpeas, but really the majority of acres are being taken by wheat and barley.

Q. And about how many acres of farmland are there in Montana?

A. Off the top of my head, I would put it at about 5 million acres of farmland in Montana that is used for growing wheat and barley.

Q. And by the time you've ramped up to, say, the year 2025, approximately how many acres do you expect to use to grow Latitude grain?

A. I would have to go back to the spreadsheet, but I think it's going to be on the order of approximately 150,000, maybe.

Q. Okay.

A. Again, I'd have to go to the spreadsheet for that.

Q. We're going to get to that, but why don't we turn to the cost, since that's the subject of some of the Court's questions.

THE COURT: How much longer are you going to be?

MR. DILLON: Probably about another half hour.

THE COURT: Well, we started late, so you just let me know when you or if you want a recess?

MR. DILLON: We can take the morning recess now, if you'd like.

THE COURT: What I'm saying is I don't need a recess. If you need one, let me know.

MR. DILLON: I think I'm good. I don't want to be the one to hold somebody back here, but we'll press on.

BY MR. DILLON:

Q. Dr. Gromov, have you analyzed how much it will cost to produce Latitude?

A. Yes, I have.

Q. And about how long have you been doing that type of analysis?

A. I started doing rigorous analysis about two years ago.

Q. Approximately how much more does it cost to grow Latitude versus regular canola?

A. About $800 a metric ton more of oil.

Q. And for the Court's benefit, what is the price of regular canola today, approximately?

A. Obviously, it's market-driven. My best understanding, if we use $750 a metric ton, we'd be pretty close.

THE COURT: Well, as a percentage of the cost of regular canola, how much more does it cost to raise --

THE WITNESS: More than double, Your Honor.

THE COURT: More than double?

THE WITNESS: Yes, sir.

BY MR. DILLON:

Q. And so I think you said $750 for regular canola and an additional approximately $800 for the Latitude canola?

A. That is correct.

Q. Does it cost more to grow Latitude?

A. Yes, it does.

Q. And approximately how much more does it cost?

A. If you look at the price of canola grain today, I think it would be around $350 a metric ton of canola grain. When we talk to our farmers in Montana, they're talking about asking for 500. So we're talking about $150 a metric ton, premium, to regular canola, generic canola.

Q. And why do you have to pay the farmers in Montana $150 more?

A. That's what they're asking for.

Q. Beyond the cost of growing the grain, are there any additional costs associated with making Latitude oil?

A. Yes. Once you've grown the grain and you purchase it

from the farmer, now it's yours. You have to figure out what to do with it. So you have to store it, you have to move it, and you have to do it in a closed-loop supply chain setting. So you incur costs in trucking, in storing the grain in Montana, and so those will be the costs that go on top of what you pay to the farmer.

Q. Earlier you mentioned crushing or crush plant. Could you describe what a crush plant is and how it's used to make Latitude?

A. Yes. A crush plant is a term that we use in Cargill and in the industry for the plants that turn oilseeds into oil and meal. Essentially, they squeeze the oilseeds and get the meal and the oil out of them. So that's the crush plant.

The extra cost in the Latitude case is our crush plant is in the State of North Dakota, so what we have to do, after we purchase the grain from the farmer and move it and store it in a central location in Montana, we have to pay the rail company to get it to North Dakota, and then we have to pay the crush plant to crush it for us.

Q. If you could, turn in your binder to what has been marked as PX-545. And I think it's going to be easier to look at this on the screen when we get there just because it's so small, but do you recognize this document?

A. Yes, I do.

Q. What is it?

A. It's a spreadsheet I created that models out the production costs for Latitude.
Q. Is this a document that Cargill created and maintains in the ordinary course of business?
A. Yes.
MR. DILLON: Move to admit PX-545 into evidence.
MR. SUNG: No objection.
THE COURT: PX-545 will be admitted.
(Exhibit PX-545 received in evidence.)
BY MR. DILLON:
Q. Dr. Gromov, when did you create this document?
A. This document was created earlier this year.
Q. Okay. When did you first create this type of analysis?
(There was a pause in the proceedings.)
THE COURT: Okay.
BY MR. DILLON:
Q. Dr. Gromov, I think you indicated this document you created earlier this year. When did you first create this type of analysis?
A. Probably about two years ago I started looking at the various breakdowns and line items of the production costs.
Q. All right. And which is the most accurate version of this analysis?
A. You should always use the latest version available to you.

Q. And why did your more recent versions get more accurate?
A. As we learn about the business, as we talk to more farmers, as we talk to storage companies in Montana, as we talk to railroad companies and the crush plants, our cost estimates become more accurate and realistic; hence, you should always use the most latest version of cost estimation spreadsheet.
Q. What was the purpose of creating this document?
A. As a business person, I absolutely have to understand the cost structure of my product before I go and start thinking about offering it. It also is used as an input into the more general financial model, and it is also a very good tool to manage your cost of production. It shows you clearly where you should focus your attention if you want to decrease the cost of production going forward.

MR. DILLON: All right. Mr. Sparks, if we could blow up the first column maybe out through the year 2020, if that's possible.

BY MR. DILLON:
Q. Dr. Gromov, in the left-hand column I'm going to walk down and just ask you to explain to the Court what these various categories reflect.

The first one is "Grain Farm Gate Dollars Per Metric Ton." What does that represent?
A. This is the price in dollars per metric ton that we would

pay to the farmer at his farm.
Q. All right. The next three rows involve handling freight and storage. What do these represent?
A. These three lines represent expenses associated with moving and storing the grain in the State of Montana.
Q. The next row is "Grain Freight to Crush." What is that?
A. That would be the payment to the railroad company.
Q. What are "Grain Crush Costs Capital Recovery" and "Grain Meal Credit"?
A. These are the expenses and credits that are associated with converting canola grain to canola oil at the crush plant.
Q. Why do you get a credit at the crush plant?
A. As you process canola grain into oil and meal, canola meal has value, and, as such, it reduces your overall production cost because you get paid for that. It has value.
Q. The next row is, "Total Cost Dollars Per Metric Ton of Grain." What does that represent?
A. It would be the sum of the previously discussed buckets, just a calculation.
Q. All right. And then right below that is, "Oil Plant Gate Dollars Per Metric Ton." What does that represent?
A. They would be the production costs of Latitude at the plant gate.
Q. And why is there a difference in cost for a metric ton of

oil versus a metric ton of grain?
A. Only portion of the grain is oil. In canola case, the -- you can expect to get about 41.5 percent of oil from the grain by weight. What it means is that to get a metric ton of oil, you need to start with almost 2.5 metric tons of grain, and that's why the oil cost is higher in metric ton than your grain cost.
Q. All right. And under the year 2020 we see the dollar figure $1,558.40. What does that represent?
A. That would be our estimation for year 2020, our production cost for Latitude oil in dollars per metric ton at the crush plant gate.
Q. So that's before it is shipped to the customer?
A. That's correct.
MR. DILLON: Mr. Sparks, if we could just back out.
BY MR. DILLON:
Q. Dr. Gromov, have you calculated a similar amount of the cost to produce Latitude oil for the years 2020 through 2025?
A. Yes. We made some assumptions and did that.
Q. Okay. Can you compare the cost of the Latitude oil, which I believe you said has 12 percent omega-3 content, to the current price for 12 percent fish oil?
A. 12 percent fish oil today would be priced at about $1,350 a metric ton. With Latitude costs at plant gate of $1,558 a metric ton, what it means is that if we sell at the same

price as fish oil, we actually will be losing money.
Q. So if your costs to manufacture the Latitude oil in 2020 are more than $200 at the plant, then the price that you could expect to get for equivalent fish oil -- how do you expect to make money?
A. The only way to make money is to sell the product at a premium to fish oil, and this is where the value propositions I referred to earlier, like predictable pricing, predictable supply, sustainability arguments come into play. This is where we need to persuade the customers to buy at a premium.
Q. Will this change in the future?
A. We hope it will. We do believe that today's fish oil price is on the low end of the range, so we may get some improvement there. As you see, we do project some level of improvement in our cost position.

But the biggest hope, the biggest driver of our expectations, is Project Boost, because we expect that by 2023 we are going to have Latitude oil with much more omega-3 in it while having the same cost of production.

THE COURT: Is that what accounts for most of the reduction shown on the chart from 1558.4 to 1401.2?

THE WITNESS: Actually, Your Honor, these are production costs. They do not depend on generational --

THE COURT: Well, I meant --

THE WITNESS: So the answer is, "No," Your Honor.

These operational improvements, over time we expect to get better in moving the grain, storing the grain, maybe paying the farmer a little less, maybe paying the crush plant a little less.

THE COURT: So the increased oil per metric ton doesn't account for that difference?

THE WITNESS: Yeah. This chart, Your Honor, is just the cost of production. The value of the oil would be in a different spreadsheet, Your Honor. So the Boost effect would be shown in a different spreadsheet, where we talk about the pricing of fish oil. This is just the numbers for cost of production. They're largely -- they're independent of omega-3 content.

BY MR. DILLON:

Q. Why don't we turn to PX-546. I think that will help to show this difference.

Do you recognize this document?

A. Yes.

Q. And what is it?

A. It's an Excel spreadsheet that has a financial model for Program Latitude.

Q. Did you create this document?

A. Yes, I did.

Q. And is this a document that's maintained in the ordinary course of business?

A. Yes.

MR. DILLON: Your Honor, I move to admit PX-546 into evidence.

MR. SUNG: No objection.

THE COURT: PX-546 will be admitted.

(Exhibit PX-546 received in evidence.)

BY MR. DILLON:

Q. Dr. Gromov, when did you first create this financial model?

A. I started creating versions of this model probably four or five years ago.

Q. All right. And the version we're seeing here, when was this created?

A. This particular version is from earlier this year.

Q. And how would you compare the accuracy of this version to versions that you had previously created?

A. You should use -- you should be using this version over anything else that was created previously, because the assumptions change, sometimes drastically.

Q. Okay. This was produced earlier this year. Have there been any changes in 2019 to the analysis here that we see in PX-546?

A. There was one change. If you look at the column for CY-2020, the acres harvested number was taken down.

THE WITNESS: Which is the third line from the top,

Your Honor.

THE COURT: Yeah.

THE WITNESS: That number now stands at 5,000 acres, not 10. That's the only difference.

BY MR. DILLON:

Q. Why was that adjustment made?

A. It was made out of the -- our production team, given what they had to work with, didn't feel they could get out of the gate with 10,000 metric tons, so they said the best they could do is 5.

Q. How is the information used in the financial model, PX-546, used at Cargill?

A. It is used to update senior management on project perspectives. It is used to argue for the resources that the project needs.

Q. On this document is there a line that shows the profit that you expect to earn from the sale of Latitude oil?

A. Yes, there are several. If you look in the middle of the sheet, there is a line named "EBIT." It's in bold. That would be a measure of profitability we discussed before, earnings before interest and tax.

Q. And what is the projected EBIT for 2020?

A. If you're looking at crop year 2020, it shows a negative $9.1 million.

Q. When do you project that Cargill will start making money

on Latitude?
A. We project that it's going to happen in 2023.
Q. Through calendar year -- let me back up.
Earlier we were talking about the profit share payments to BASF. Do you recall that?
A. Yes, I do.
Q. Are those reflected here on PX-546?
A. Yes, they are. They're towards the end, towards the bottom of the sheet, and the line item was called "Payment to BASF, 40 percent EBIT."
Q. And what does that show for the next five years?
A. What it shows is that because Cargill does not expect to turn profit for the first several years, there are no payments to BASF, and the first payment is scheduled to happen in 2023 in the amount of $0.5 million.
Q. And if you add up the payments that Cargill expects to make to BASF for the profit share of Latitude through crop year 2024, how much is that?
A. I'm doing quick math here. I'm coming up with $3.3 million.
Q. And in the year following in crop year 2025, how much additional is added?
A. It would be an additional $5 million.
Q. Were you here yesterday in court when Mr. Jarosz was testifying?

A. Yes, I was.
Q. And do you recall that he had a range of royalties that would be put onto the Latitude product?
A. I remember that.
Q. I just want to talk about the low end of that range.

What would be the impact to Project Latitude if it had to pay a 12.4 percent royalty on net sales of Latitude oil?
A. Well, what it would do, it would, in fact, increase my production costs by that amount, which I'm figuring is close to $200 a metric ton, which would make my job a lot harder. Now I have to overcome not only $200 but an additional $200 when I try to sell the product, and I'm afraid that in that scenario, we may have to wait for a better fish oil pricing before we launch.
Q. Dr. Gromov, to date how much has Cargill invested in the launch of the Latitude program?
A. My best estimate is Cargill has invested about $65 million.
Q. And if Cargill were enjoined from selling Latitude through the expiration of the Group A patents in 2025, what would be the impact on the Latitude program and Cargill?
A. Before I answer, let me make a comment.

I think for most people when they think about Cargill, they think about this giant company that,

essentially, is just huge. The reality is that it's a collection of businesses, and those are smaller businesses. And the business I work for, the fats and oils business, also known as GEOS, hosts Project Latitude.

In that business, Project Latitude is the largest project that they've been engaging in for many, many years. So the loss of this project would deprive the business of future profits, strategic profits into the future, as well as it will be a hit to P&L.

$65 million is a really substantial amount, relative to the size of business I work for. So that's the first thing I would like to say.

In the course of running the project or the program Latitude, we've made investments. We've created a station in Montana. We built a building there. We hired people who are dedicated to this effort. Those people agreed to move their families to the State of Montana. If we have to stop, we would have to really work hard on offering some sort of alternative positions for those people, but there's no guarantee.

The other thing that would happen is that the amount of our R&D work in our Colorado facility would be drastically reduced, with similar types of consequences for people, and obviously myself here would be affected.

Q. Why does the omega-3 market need another alternative

source like Latitude?
A. We're short. Frankly, we're short omega-3. As people, we don't eat enough omega-3. We should be eating more, especially in the United States. As animals, as fish, we do not feed them enough omega-3 for them to perform at their best.

So you have to have an additional source of omega-3; otherwise, it's going to be very difficult situation if you want to grow the aquaculture industry and if you want to keep everybody healthy.
Q. Why is Cargill specifically needed in order to solve the deficit in omega-3 oil?
A. Well, I hope -- I tried to show what's involved in actually making something like that commercial and selling it, because there's a lot of activities that you have to do, starting from science, which BASF takes care of, and then you start doing your closed-loop production system, from planting seed to marketing the oil. Cargill does all of that.

There are companies who are very good at processing oil seeds into oil. There are companies that are very good at making planting seeds and selling planting seeds. I don't know if they're going to be able to do that, I doubt. Maybe, they will be. But I know that Cargill will be able to execute on that, because we've been doing that for over 20 years without specialty canola products.

Q. Are there unique health benefits to Cargill's Latitude that are not found in other plant-based omega-3 sources?
A. Yes. Project -- sorry, Latitude oil is largely an EPA oil rather than a DHA oil. Fish oil has both. Alternative sources like alga oils would have largely DHA, and DHA is valued mostly in infants. It helps develop their cognitive abilities and vision. EPA oil has a lot of heart health benefits, so it's relevant for the majority of us here.

THE COURT: It's what?

THE WITNESS: Heart health benefits, Your Honor. It makes your heart healthier. It's a well-known fact in the medical community, and I'm not aware of any other source of EPA oil other than fish oil and Latitude.

BY MR. DILLON:

Q. What would be the impact to consumers of stopping Latitude from coming to the market?

MR. SUNG: Objection, Your Honor. It's really calling for expert testimony on this.

THE COURT: I don't think it calls for expert testimony. The answer to that question is pretty obvious to me, and I'm not an expert.

BY MR. DILLON:

Q. You can answer it, Dr. Gromov.
A. Thank you. I believe that if there's no alternative source of EPA, there will continue to be a deficit of this

very important fatty acid in the marketplace, and we, as a people, will be worse off.

Q. Other than fish oil, are you aware of any other alternative source for EPA?

A. No, I'm not. There are plenty of DHA sources, but I'm not aware of any EPA oil that would be available.

MR. DILLON: Your Honor, unless you have any further questions for Dr. Gromov, I would pass the witness.

THE COURT: All right. I think we ought to go ahead and take a recess.

(Recess from 11:55 a.m. 12:18 p.m.)

CROSS-EXAMINATION

BY MR. SUNG:

Q. Let me ask you a couple questions before we get started on some of the aspects you tied in during your direct testimony.

You're the program manager for Latitude, correct?

A. That's correct.

Q. Would it be fair to say that you are familiar, since being involved with that project, on every aspect of the project?

A. Since about 2013, yes.

Q. And in that capacity, you're responsible for receiving information from your direct and indirect reports about the project?

A. I wouldn't say every piece of information goes through me, but yes. In general, yes.
Q. And you have responsibility for distributing information within Cargill about the project?
A. Not solely, but I've done that.
Q. But you'd be familiar with information that was being discussed within Cargill about Project Latitude?
A. I would expect to be familiar with that, yes.
Q. And just to be clear, Project Latitude was formerly known as Project Dolphin; is that correct?
A. That is correct.
Q. If we can have you turn in your binder to a tab CX-0578.
Are you there, Dr. Gromov?
A. I'm there.
Q. Do you recognize this document?
A. This is an e-mail I sent to Mark Christiansen and Willie Loh.
MR. SUNG: Your Honor, we'd like to move into evidence CX-0578.
MR. DILLON: No objection.
THE COURT: CX-0578 will be admitted.
(Exhibit CX-0578 received in evidence.)
MR. SUNG: Thank you, Your Honor.
BY MR. SUNG:
Q. Who are Mark Christiansen and Willie Loh?

A. Mark Christian is the managing director of specialty oils, and Willie Loh is my boss.
Q. And do you recall what this e-mail was regarding?
A. Yes.
Q. And what was that?
A. It was a summary of my conversation with somebody from Salmofood.
Q. And is Salmofood a company?
A. Salmofood is a feed -- fish feed manufacturing company in Chile.
Q. And if you read the end of that first paragraph, there's a reference to CQN. Is that Cargill Aqua Nutrition?
A. Yes.
Q. And so there appears to be a comparison between the two; one being a plant from Salmofood and one being the CQN plant. Are they roughly the same size?
A. No.
Q. You'd say they're a bit smaller than CQN?
A. Yes.
Q. And has Cargill done business before with Salmofood?
A. I'm not aware of any.
Q. Do you consider Salmofood to be a potential Cargill customer of Latitude?
A. Yes.
Q. If you go further down where it begins, "Nuseed works

with them," do you have a recollection why you stated that in this e-mail?
A. Yeah, I see that. Yes, because at the time I was talking to Salmofood about trialing Latitude, in one way or the other, and they mentioned that they work with Nuseed.
Q. And particularly about Nuseed's Aquaterra product; is that correct?
A. That's what they volunteered, yes.
Q. And do you see further where it mentions that there will be about 100 metric tons of Aquaterra oil used over the 15- to 18-month period? Do you see that?
A. Yes.
Q. And you also state in this e-mail that Aquaterra oil was given away for free.
A. Yes.
Q. And your message further to Messrs. Christiansen and Loh was that, "Salmofood is willing to explore similar arrangement with us."
What did you mean by that?
A. What I meant by that is Salmofood was, in principle, open to trial Latitude oil.
Q. So was it your understanding that Salmofood was a potential customer in both Nuseed, as well as Cargill?
A. Yes.
Q. I'd refer you in your binder to CX-0164.

THE COURT: What was that number?
MR. SUNG: CX-0164.
THE WITNESS: I'm there.
BY MR. SUNG:
Q. And, Dr. Gromov, do you recognize this document?
THE COURT: Wait a minute. Let me find it. 0164?
MR. SUNG: Yes, Your Honor.
THE COURT: Okay. I've got it.
MR. SUNG: Thank you, Your Honor.
BY MR. SUNG:
Q. And if I can refer you specifically within this document to the page that is marked as Bates number 453. Those are the last three digits down there at the bottom.
A. I'm there.
Q. And down at the very bottom, that bridges over to the next page, do you recognize that as an e-mail that you had sent?
A. Yes.
Q. And who is Brad Rude?
A. At the time Brad Rude was working in what is known as the Risk Management Services Group for CQN.
Q. And you stated in that e-mail, the second bullet point there, "Our oil production volume projections currently stand for 2020 at 3500 metric tons"?
A. Yes.

Q. "For 2021, 10,500 metric tons"?
A. Yes.
THE COURT: Is this going over to the next page?
MR. SUNG: Yes, Your Honor, it is, so it would be the very top of the next page.
THE COURT: Okay.
BY MR. SUNG:
Q. And then for 2022, 17,000 metric tons; is that correct?
A. That's correct.
Q. And was that your understanding at that time you wrote the e-mail?
A. That was my best guess at the time.
MR. SUNG: I'm sorry, Your Honor. I don't know if we got it on the record. This exhibit has been admitted; is that correct?
THE CLERK: No.
MR. SUNG: Okay. Sorry. We'd like to move the admission of CX-0164. Thank you.
MR. DILLON: No objection.
THE COURT: That will be admitted.
(Exhibit CX-0164 received in evidence.)
BY MR. SUNG:
Q. And you see further down there's a -- in the next bullet point, the top bullet point, on the last page there, "As a mechanism to ensure that the contracted price level reflects

the market, we envision CQN taking two-thirds of the annual production."

What does that mean?

A. What I meant by that is it will not be an exclusive offer to CQN; it would be selling to somebody else, as well.

Q. And is the two-thirds of that earmarked amount from that production -- is that an accurate reflection?

A. That's what I put in the e-mail. It's really a placeholder.

Q. But that's based on the best information you were projecting at that time, correct?

A. That was what I envisioned; that's correct.

Q. And you follow on by saying, "We need to secure volume commitments 18 months prior to delivery."

Why is that?

A. Because it takes us a long time to manufacture the oil. One way of doing the business is to book your oil sales before you book your acres with the farmers. So if you want to be able to do that, that's about the lag time that you need. You may compress it to maybe 12 months, but no shorter than that.

Q. So when you say that, "Cargill will not be selling Latitude until 2021," does that mean that you won't book these advance contracts at that time, or will it mean that you won't be delivering commercial product?

A. It means that we will not be delivering the oil.
Q. So you would be engaging in advanced sales at this 18-month time frame; is that correct?
A. It's quite possible.
Q. And so, as is indicated there, had it been a 2020 delivery, you'd need that commitment by July of this past year. Is that fair?
A. That was the best case scenario. Like I said, you can compress the timeline.
Q. And if we go to the next bullet point, you indicate there, "Pricing will be done on a formulaic approach using a benchmark fish oil price."

Is that your understanding about how you do your pricing or how you've projected to do your pricing?
A. Yes, sir.
Q. And it follows that, "Since fish oil trends higher, we would be looking at a 10 percent premium over benchmark for the delivery 18 months out."

Is that what you were describing earlier when you mentioned that you lock in the contracts for the sale in future months, that you testified earlier on direct?
A. Yeah, that's what I envisioned; that is, we ran the price today and delivery is going to be later in the future. But price is set today.
Q. And does that reflect why you're saying a little bit

farther down, "The difference between contracted and realized fish oil price at delivery is a risk"?
A. Yes.
Q. And so is it a risk because it's unpredictable about any difference that might occur between the time you contract and the time you actually deliver?
A. Yes, because the fish oil price is unpredictable, and whatever the point in time -- whatever the price happens to be at delivery, one party is going to be unhappy.
Q. Can I turn you in your binder to tab CX-0548.
A. I'm there.
Q. And, Dr. Gromov, do you recognize this document?
A. Just to make sure, 0548?
Q. Correct.
A. Yes, I do.
Q. And can you tell us what this document is?
A. These are the updates that we used to issue about state of the project and state of the industry, and these updates would go to internal Cargill people four times a year.
Q. And it looks like it's dated December 2018. Is that -- do you have any reason to dispute that date?
A. No, but I cannot see the date in my copy.
Q. Okay. You might be able to see it on the screen. It's blown up.
A. I cannot see the date for that.

I'm sorry, December '18. I was looking -- I apologize.

Q. No worries.

MR. SUNG: Your Honor, we'd like to move the admission of CX-0548, please.

MR. DILLON: No objection.

THE COURT: That will be admitted.

(Exhibit CX-0548 received in evidence.)

BY MR. SUNG:

Q. And if I can refer you specifically to the page within this exhibit, Bates number ending in 450.

A. I'm there.

Q. And if you look at the middle section of that page, it appears to state, "Human direct market activities."

A. Yes.

Q. You testified earlier on direct that Cargill was not interested in the human nutrition market. Is that correct?

A. Yes.

Q. And so as of December 2018, your internal bulletins were still publicizing that you were pursuing human direct market activities.

A. These were unsolicited offers. We did not seek them out; they came to us.

Q. So under the section labeled "Human Direct Market Activities," it refers to Amarin as a U.S. pharmaceutical

company. Do you see that?
A. Yes.
Q. And a little bit father down, on the third bullet point in that section, it refers to a company called Pronova, and it appears to say, "Pronova has signed a material testing agreement and has received oil for testing."
A. That's correct. That's the oil I mentioned in the direct that was sent to Norway.
Q. So you said that it was sent to BASF-Norway.
A. Correct.
Q. It continues, "KD Pharma's MTA is in preparation. The MTA includes wording that preserves Cargill's right to sell broadly into this industry."
By referring to "this industry" within this newsletter, do you take that to be your understanding that "this industry" is the human direct market activity industry?
A. Yes.
Q. If we can go further down on that same page to the next section that is entitled "Competitive Developments."
A. I can see that.
Q. And that first section labeled "CSIRO/Nuseed," do you see that?
A. Yes.
Q. The first bullet point appears to talk about testing by two of the fish farmers that you had identified earlier on

direct. Is that accurate?
A. Yes, Cermaq and Los Fiordes are the farmers.
Q. And it reports of Nuseed's activity, again mentioning that the oil which -- do you understand that to be Aquaterra?
A. Yes.
Q. That Aquaterra was provided to fish farmers without charge. Do you see that, as well?
A. Yes.
Q. And if you skip a line, it says, "Chilean fish farmers and feed manufacturers indicated there was no need to test Latitude oil unless the Aquaterra oil caused a problem."
Do you have an understanding what that refers to?
A. I think I do.
Q. And what is that?
A. We've been told by said parties that if the tests show that Aquaterra performs well, this would infer that all of the plant-based oils will perform well.
Q. And by that, was it your understanding that the same customers wouldn't put Latitude to that same test as a result?
A. That's what I understood.
Q. So Cargill would not have to create or pay for such testing. Is that fair?
A. If there's no test, there's no payment, yes.
Q. It continues on to say that, "Nuseed representatives have

indicated that their 2019 Montana production target is 15,000 acres." It also goes on to say, "Key production contract terms include free planting seed and flat-priced grain at harvest."

You mentioned earlier during your direct that Cargill is planting Latitude-producing crops in Montana; is that right?

A. As research acres, yes.

Q. And, similarly, your understanding is that Nuseed is planting omega-3 canola-producing -- or canola-oil-producing crops in Montana, correct?

A. That's my understanding.

Q. And would it be your understanding that having those two additional plantings, where they are looking for growers to plant those crops, that essentially they're competing for grower contracts in Montana?

A. I wouldn't put it this way.

Q. How would you put it?

A. Anybody who wants to work with a farmer in Montana has to compete with wheat and barley. That's the majority of what people grow. You have to persuade them to grow your stuff over wheat and barley.

Q. And you were mentioning that the growers in Montana are seeking to charge a premium for growing Latitude-producing crops, as well. Are they?

A. Yes.
Q. Now, further down on this particular page you'll see another section, "Other Omega-3 Suppliers." Do you see that?
A. Yes.
Q. And that first line refers to what appears to be a company named Veramaris. Are you familiar with that company?
A. Yes, I am.
Q. And can you tell us what your understanding is of that company?
A. Veramaris is a joint venture between a Dutch company called DSM and a German company called Evonik. The sole purpose of this joint venture is to produce alga oil for aquafeed.
Q. And so if you look at that next page, where it talks about Peruvian aqua grade fish oil values, right before that, it says, "break even," and it refers to $3,000 to $4,000 per metric ton range.

Is it your understanding that that's referring to Veramaris' break-even price?
A. The way -- no. That's the calculation. Our best guess is that they're offer price brought back to the level of omega-3 level of a Peruvian fish oil would put that parity value of fish oil at 3- to 4,000 metric ton range, which is, incidentally, double of what it was at the time.
Q. Double of what the fish oil was?

A. Fish oil was at the time, yes.
Q. Okay. And so, therefore, I think you continue saying that, "Given the current levels of around $1,900 per metric ton, these premiums are such that incorporation will be limited to niche applications."
What does that mean?
A. That means that you cannot expect to sell a lot of product at that price into the industry. You can always find a customer or two, but you will never make the volume. That was the intent of the statement.
Q. And so an algal producer of fish oil alternatives, like Veramaris, would be limited to niche applications. Is that fair?
A. In this price scenario, it is my belief, yes.
Q. If I can turn you in your binder to CX-1279.
A. I'm there.
MR. SUNG: Your Honor, do you have that tab?
BY MR. SUNG:
Q. And if I can refer you within that exhibit to Bates number ending in 427 -- actually, let me start -- do you recognize this document?
A. Yes.
Q. And the date September 27, 2017, does that comport with your recognition?
A. It looks right to me.

MR. SUNG: I'd like to move the admission of CX-1279, Your Honor.

THE COURT: The whole thing?

MR. SUNG: Yes. Yes, sir.

THE COURT: It's a multipage document. Do you want the whole thing in?

MR. SUNG: There will be a number of pages that we go through. If it becomes too unwieldy, Your Honor, we'll endeavor to excerpt, as well.

THE COURT: All right. Exhibit CX-1279 is admitted.

(Exhibit CX-1279 received in evidence.)

MR. SUNG: Thank you, Your Honor.

BY MR. SUNG:

Q. If I could refer you to the page ending in Bates number 427.

A. I'm there.

Q. Can you describe for us what is on this slide?

A. This is a much earlier version of the financial model we looked at in the direct.

Q. And the financial model for what, in particular?

A. Financial model for Program Latitude.

Q. The Generation I product within that series; is that correct?

A. I cannot tell what generation is properly incorporated in this.

Q. Okay. If you look at your screen, there's some highlighting there. Would that refresh your recollection?
A. Yes, yes.
Q. And by the Generation I product, again, we're talking about what you would go to market with in 2021?
A. That is correct.
Q. And so when you talk about "major value driver assumptions," what does that mean?
A. Those are the assumptions that are largely responsible for the value in the financial model. So if you change those, you change the outcome.
Q. So do you do these types of projections on a periodic basis for these products?
A. Not in this form, no.
Q. Understood. And so let's take a look at the first assumption, omega-3 expression level at 12 percent. Is that an assumption that has borne out, to date?
A. I believe so.
Q. And the next line, 500,000 commercial acres. Is that an assumption that has been borne out, to date?
A. I don't think so.
Q. And so does this tie in with your testimony on direct that that has been significantly reduced in terms of your projection?
A. I would have to look at the most current model. I think

it's just shy of 500,000 metric tons in the outer years, in the year 2029, 2030.

Q. Did I hear you correctly earlier testify that rather than 500,000 commercial acres, you were looking at something more like 150,000 commercial acres?

A. By 2025, yes.

Q. And when it -- two bullet points down, when it talks about a "feed margin - base loads the business," what does that refer to?

A. Back in the day, it referred to sales into aquafeed business and assumed margin for those sales.

Q. "Margin" being profit?

A. Yes.

Q. And so your forecast at this time, in 2017, was that for feed it would be $400 per metric ton?

A. That was my assumption.

Q. Do you have a rough estimate as to what that translates to by way of percent of sales?

A. I would have to run the numbers. I'm not that quick. I'm sorry.

Q. Would it surprise you if it was in the 20 to 25 percent range?

A. No.

Q. Next line, $700 per metric ton for the supplements margin. What does that refer to?

A. It was an assumption of what we would realize if we were to sell into supplements, the actual supplements market.
Q. So that would be human nutritional supplements, correct?
A. Correct.
Q. Next line might be a typo, but you can tell us. What did you have for the F&B margin -- is that food and beverage?
A. Yes.
Q. And what number do you understand that to be referring to in terms of the dollar amount per metric ton?
A. Clearly a typo here. Maybe I meant $2,000.
Q. So the next line, the overall gross margin, 29 percent?
A. That would be a calculation of the model.
Q. Within the same exhibit, if I can refer you to Bates number -- the page ending in Bates number 430.
A. I'm there.
Q. And you'll see up top that first section heading "Generation II Product." Is that the Generation II product based on your Project Boost that you described earlier?
A. Yes.
Q. And the bullet point immediately facing that, the first one, "Every percentage point of omega-3 in the oil is worth about $50 per metric ton of oil." Is that $50 per metric ton more than something that would be a percentage less in terms of the omega-3?
A. Yes, that's the -- I was referring to as a range between

30 and 50 in the direct.
Q. Okay. So these are the incremental amounts based on every additional percentage?
A. Yes.
Q. You indicate we have a Boost R&D program that identifies and patents --
THE COURT: Well, a lot of this is a several-year-old projection, counsel. I mean, is that really relevant to what we're talking about today?
MR. SUNG: Your Honor, we think it is.
THE COURT: You have newer figures.
MR. SUNG: We do, and we're going to get to the comparison between the newer figures and the earlier projections to help highlight the unpredictability of these projections.
THE COURT: You think the unpredictability of which projections? The current ones or the old ones?
MR. SUNG: Well, I think the witness will be testifying that, as he'd already said, the ones that are most recent tend to be the most accurate.
THE COURT: Yeah.
MR. SUNG: But at the same time, from year to year, the projections themselves aren't necessarily accurate. It would be our position later, Your Honor, that that means, similarly, that today's projections are similarly

unpredictable.

THE COURT: Well, we're spending an awful lot of time on this.

MR. SUNG: I'll endeavor to move on.

BY MR. SUNG:

Q. If I can refer you to Exhibit or tab CX-1878 within your binder.

THE COURT: 1870?

MR. SUNG: 1878, Your Honor.

THE COURT: 1878.

THE WITNESS: I'm there.

BY MR. SUNG:

Q. And do you recognize this document, Dr. Gromov?

A. Yes. It's an e-mail chain.

MR. SUNG: Your Honor, we'd like to move into evidence Exhibit CX-1878.

MR. DILLON: No objection, Your Honor.

THE COURT: It will be admitted.

(Exhibit CX-1878 received in evidence.)

BY MR. SUNG:

Q. Dr. Gromov, if I can take you to the very bottom e-mail which appears to be the earliest e-mail within that thread. Do you see that?

A. Yes.

Q. And do you recognize this to be an August 31, 2018 e-mail

from you to Mr. Christiansen and Mr. Loh?
A. That's what the send field says, yes.
Q. And you were, according to this e-mail, sending them Nuseed's historical financials. Do you recall why you were doing that?
A. I do not.
Q. Did someone at Cargill request this information from you?
A. I don't think so.
Q. And if we can go up to the earlier e-mail thread. It appears to be a response from Mr. Christiansen about four minutes later, and it reads, "Interesting. What they were asking for royalties is significant in comparison to recent EBITA. It would be cheaper for BASF to buy entire biz as reasonable multiplier versus pay those types of royalties."

Do you have an understanding as to what Christiansen meant?
A. Not really.
Q. If I can refer you to CX-0577 in your binder.
A. I'm sorry. One more time, please.
Q. 0577.
A. I'm there.
Q. Do you have that tab, Your Honor?

THE COURT: Yes.

BY MR. SUNG:
Q. And do you recognize this document, Dr. Gromov?

A. Yes. It's an e-mail chain.

MR. SUNG: Your Honor, we'd like to move the admission of CX-0577 into evidence.

MR. DILLON: No objection.

THE COURT: All right.

(Exhibit CX-0577 received in evidence.)

BY MR. SUNG:

Q. And what does this e-mail refer to, Dr. Gromov?

A. Summarizes my conversation with people in CQN-Chile back in beginning of 2017.

Q. And in that first bullet point there's an indication, appears to be reflecting a conversation that you had with CQN-Chile, as you describe, and it states, "I got some Nuseed questions, as well. I stressed the complexity of execution and that we have somewhat different products (EPA vs. DHA)."

Is that reflecting your discussions with CQN in trying to distinguish your product?

A. This is my response to their question. They asked me about what about this other company, and I told them what I knew at the time.

Q. And when it follows on to say, "The difference did not seem to matter to Rodrigo," what does that refer to?

A. EPA versus DHA. Rodrigo did not have an opinion on really the value of those in salmon feed.

Q. And if we go all the way up to the top of this thread,

which is apparently the last one chronologically, it appears to be from Willie Loh to you copying Mark Christiansen. Would you agree with that?

A. Yes.

Q. And do you see Mr. Loh's statement that, "price pushback from a qualified customer is the sincerest form of purchase intent"?

A. I can read that as well.

Q. If I can turn you in your tab to CX-1560.

A. I'm there.

MR. SUNG: Your Honor?

BY MR. SUNG:

Q. And do you recognize this document?

A. I do. It's a PowerPoint slide.

Q. And if I can refer you within this document to Bates number 216.

THE COURT: Do you want this whole document?

MR. SUNG: Your Honor, we do.

THE COURT: All right. CX-1560 will be admitted.

(Exhibit CX-1560 received in evidence.)

BY MR. SUNG:

Q. And do you see the page at 216, Dr. Gromov?

A. In my binder, yes. I can see in my binder.

Q. Okay. The Bates number should be 216.

THE COURT: 216?

BY MR. SUNG:
Q. Dr. Gromov, do you see this on your screen, that particular slide, slide 4 internal?
A. Yes.
Q. When it refers to "base case earnings trajectory," what does base case mean to you?
A. Can't exactly recall. It probably refers to one of many scenarios that I had at the time.
Q. And as a frame of reference, does that mean there can be a more conservative or a more aggressive scenario?
A. It's quite possible.
Q. Do you typically run different scenarios at any point in time?
A. Not anymore, no.
Q. And so which of those types of scenarios that I listed would be what you would do today, for example? Is that a base case?
A. I call them base case, yes.
Q. If I can refer you two slides farther in. It's Bates number 219, but it looks like internal slide 6, if that would be helpful. Sorry. That, I don't believe, is the right page.
Sorry. That's internal slide 7. Do you see that, Dr. Gromov?
A. Yes.

Q. So back in 2016 you listed out a number of risk factors that would affect your projected earnings for project Latitude; is that correct?
A. I did.
Q. And so this would be a summary of all the different considerations you undertook?
A. That's what I could think of at the time.
Q. And did you take into account any third-party intellectual property rights like CSIRO, GRDC, or Nuseed's in this assessment?
A. I did not.
Q. Let's take you in your binder to CX-0483. This is a document that's been admitted already.
I note it's small to see, but do you recognize this document generally?
A. Give me a second, please. I don't think it's in my binder.
Q. I'm sorry. We'll just follow -- because it's been admitted into evidence already, if you could just follow it on your screen.
A. Okay.
Q. Do you recognize this document to be a version of your projections that you've put together, your financial projections with regard to project Latitude?
A. It looks like a really dated version, yes.

Q. When you say dated, how dated? Would 2017 be around that time? Earlier?
A. At least. I can't tell by looking at it.
Q. Now, when you prepare this document, you prepare it in the normal and ordinary course of your business at Cargill; is that correct?
A. Yes.
Q. And you don't have any reason today to dispute that this information was your best estimate when you created it, do you?
A. I do not.
Q. So if that data turned out to be inaccurate later, that would not change your answer to my last question, would it?
A. Could you repeat the question, please.
Q. That it would have been your best estimate at the time you created the document?
A. Yes.
Q. So you'd agree that with regard to final projections, things do change over time, yes?
A. Yes.
Q. And there may be changes in assumptions? I think you mentioned some of those before.
A. I can guarantee there will be changes.
Q. And you may have different forecasts at any given time, is that also what you had mentioned?

A. That's right.
Q. When we met at your deposition, do you recall making a statement with respect to your projections of Project Boost, that you run multiple timelines in assessing the financial projections?
A. I do not recall that statement.
Q. Do you recall making a statement that with regard to --
THE COURT: Where is the deposition?
MR. SUNG: I'm sorry, Your Honor?
THE COURT: Where's the deposition?
MS. SUMMERS: We have it right here.
THE COURT: You don't question anybody on a deposition if I don't have a copy of it.
MR. SUNG: I was just going to ask him whether he recalled --
THE COURT: Well, you're not going to ask him unless I've got the deposition.
MR. SUNG: Yes, sir.
THE COURT: Where are you?
MR. SUNG: Referring you to Page 97 within the deposition transcript.
THE COURT: All right. What line?
MR. SUNG: It's going to be line 13, Your Honor.
THE COURT: All right.
MR. SUNG: May I simply just read the question and

answer to the witness?

THE COURT: Well, what's the point? It's consistent with what he said. Why are you reading this into evidence?

MR. SUNG: I think part of it is understanding what he means when he talks about making predictions, Your Honor.

THE COURT: I think it's consistent with what he said. Let's move on.

BY MR. SUNG:

Q. Dr. Gromov, you mentioned with regard to first mover advantage that you didn't see any in this particular instance; is that correct?

A. That is correct.

Q. So under the circumstances of the fish feed trials in Chile, I think you've already testified that there was no need for Cargill to invest in the testing where the farmers had already tested the Aquaterra product successfully? Is that your understanding?

A. There was just the opinion of one single farmer. I don't think it reflects everybody's opinion.

Q. Okay. And you've also mentioned that Cargill is still using LFK as a benchmark, correct?

A. We used it in 2019 trials in Montana. That's my understanding.

Q. And you had been using them up through 2019, as well, for that same purpose?

A. That is my understanding.
Q. And the Boost project continues to use LFK genes in their plants?
A. It's the same elite event that we were given by BASF. I'm risking mixing up terminology, but I think it's a yes.
Q. And you've also mentioned earlier on with Cargill Aqua Nutrition that after Cargill purchased EWOS, that it is now Cargill Aqua Nutrition would be a buyer potentially of Latitude; is that correct?
A. A potential buyer as well, yes.
Q. And, similarly, if Cargill were allowed to sell Latitude, Cargill would be selling Latitude to Cargill, correct?
A. Yeah. CQN could be our customer, yes, CQN could be a customer of GEOS.
MR. SUNG: Thank you, Dr. Gromov. I don't have any further questions, Your Honor.
MR. DILLON: Your Honor, there's no need for redirect.
THE COURT: I'm sorry?
MR. DILLON: There's no need for redirect. The witness can be excused.
THE COURT: Can the witness be excused?
MR. SUNG: No, Your Honor.
THE COURT: What?
MR. SUNG: I'm sorry, your question was?

THE COURT: May the witness be excused?

MR. SUNG: Yes, Your Honor.

THE COURT: All right. Dr. Gromov, you are excused with the understanding that you won't discuss your testimony with any other witness in the case until the case is concluded.

THE WITNESS: Yes, Your Honor.

THE COURT: You can remain in the courtroom, if you wish, since you finished testifying, or you can be excused and go about your regular job.

THE WITNESS: Thank you, Your Honor.

(The witness was excused.)

THE COURT: Well, I normally give the jury a few extra minutes for lunch, but I can go with just an hour if that's all right with counsel. So let's take a recess until 2:00.

(Recess from 1:02 p.m. to 2:00 p.m.)

MR. ZAHEER: Your Honor, before we get started with the next witness, I wanted to flag an evidentiary issue that's pending before you that pertains to this witness. In our motion in limine number 7, we moved to exclude a certain license agreement that we understand this witness will be seeking to introduce. It's PX-451. And it is in the binder that I understand that is in front of Your Honor.

The issue that we raised in our motion was that that

agreement was not produced during discovery. The first time it was produced was alongside Mr. Napper's expert report, the expert report for opponents.

THE COURT: This is a patent?

MR. ZAHEER: It's a license.

THE COURT: Oh, I'm looking at 415. 451. Excuse me.

MR. ZAHEER: 451, Your Honor, yes.

THE COURT: Okay. This is a license between whom?

MR. ZAHEER: Between BASF and the University of Hamburg. This is an agreement that was never produced during discovery. It was only produced after our expert had already provided opinions when their expert provided their rebuttal opinions. It was produced with that report and relied upon by it.

We had sought this exact type of document during discovery. We had noticed a 30(b)(6) deposition on it, and the 30(b)(6) deposition witness was unable to provide any details about this agreement during deposition, and so for those reasons we think that, given the late production of the document, the reliance on it by their expert on a document that had never been produced, we would move to exclude the document.

MS. ANAND: Hello, Your Honor. Nitya Anand on behalf of BASF.

This particular agreement was produced in -- at the beginning of July during expert discovery. It was not relevant prior to that time. It was not responsive to any document request by proponents. And it became relevant when Mr. Napper reviewed the expert report of Mr. Jarosz and was drafting his rebuttal report. At that time, the document was produced.

THE COURT: Wait a minute. Why was it not relevant before?

MS. ANAND: It was not -- it was not responsive to any document request made by proponents during the fact discovery page. Dr. Andre mentioned that he was aware of this collaboration that existed during the -- his fact deposition but --

THE COURT: When was that?

MS. ANAND: That was in, I believe, March or April of this year. But it was not requested during Dr. Andre's deposition. There was no motion to compel this exhibit.

THE COURT: What collaboration are you referring to?

MS. ANAND: This is the collaboration between BASF and the University of Hamburg. It's actually been referenced multiple times in this proceeding already by both Dr. Andre, Dr. Bauer. I believe proponents even asked Dr. Bauer some questions about the collaboration between BASF and the University of Hamburg in their cross of Dr. Bauer.

So it's been referenced multiple times in this proceeding already without objection. This is the actual agreement underlying that collaboration.

THE COURT: And this was relied upon by?

MS. ANAND: This was relied upon by Mr. Napper in his damages rebuttal report. This was provided prior to --

THE COURT: And somebody provided it?

MS. ANAND: Yes, it has been provided. It was provided on July 1st prior to depositions in this case. Mr. Jarosz testified --

THE COURT: Prior to what depositions?

MS. ANAND: Prior to experts' depositions, Your Honor. Mr. Jarosz testified about it at his expert deposition, Mr. Napper testified about it at his expert deposition, and Dr. Kunst was even shown this particular document at her expert deposition, Your Honor.

MR. ZAHEER: We requested this at the outset of discovery. We sought a deposition on it, the deposition witness who was their corporate representative.

THE COURT: You requested this?

MR. ZAHEER: Yes. We requested all licenses and all licenses they would seek to rely upon in support of an expert opinion, and the first time we even saw this agreement was the day that we received their expert report, and the deposition she's referring to occurred just a few days

thereafter.

This is not how discovery works, Your Honor. They can't rely on a license as the basis for an expert opinion when they never produced it in discovery, and they never even produced information about it during the 30(b)(6) deposition that was specifically on licenses between BASF and other parties.

MS. ANAND: I would just add one other thing, Your Honor. This was not an agreement that had been requested prior to Dr. Andre's deposition, and it was produced.

THE COURT: They asked for all licenses.

MS. ANAND: They asked for -- the language is not quite as -- this is a slightly different type of agreement, Your Honor, as Dr. Andre will testify to the contents of this collaboration between BASF and University of Hamburg.

THE COURT: Well, it's not a license. It's a collaboration agreement. Did somebody license technology or what?

MS. ANAND: There was not technology licensed in this.

THE COURT: What is this?

MS. ANAND: This was a collaboration between BASF and the University of Hamburg.

THE COURT: Well, I remember there was some testimony about that.

MS. ANAND: Yes, you're right, Your Honor. There was. There was testimony about this. And it is a collaboration that resulted in a number of patents and other types of technology being developed.

And I would note, Your Honor, just as a final thing, proponents have also produced numerous documents, both after depositions of fact witnesses had already occurred, including their only financial document that they produced, and even as late as September, August, last week.

THE COURT: Well, that's not before me.

MS. ANAND: Understandable. I understand, Your Honor.

THE COURT: If this was made available in July, I'm going to overrule the objection.

MS. ANAND: Thank you, Your Honor.

So as our next witness, opponents call back to the stand Dr. Carl Andre.

THE CLERK: Do you want him resworn?

THE COURT: I think he testified under oath before. You are still under oath, Dr. Andre.

THE WITNESS: Understand, Your Honor.

CARL ANDRE, called by BASF, having been previously duly sworn, was examined and testified further as follows:

DIRECT EXAMINATION

BY MS. ANAND:

Q. Welcome back, Dr. Andre.
A. Hi.
Q. Thanks for sticking with us through this entire trial. I know it's been a long time, and we really appreciate it.
Can we get PDX-402, please.
So I'd like to talk to you about BASF's efforts related to its LFK elite event. You've seen this slide previously in your previous testimony. Can you remind us what is shown in this slide?
A. Sure. So this slide depicts the DNA that we have in our elite event, and each arrow is an enzyme that we put into our elite event, and next to those arrows are symbols for the entities where we obtained those genes or enzymes from.
So if I walk around the circle, at the top yellow arrow is a delta-5 desaturase that comes from Bioriginal. Going clockwise around, next is a red arrow with delta-4 desaturase, also from Bioriginal. The next red arrow is a different delta-4 desaturase from Amaethon or the University of York. They're the same with two names.
The next one is a delta-5 elongase from the University of Hamburg. At the bottom is a delta-6 elongase also from the University of Hamburg. And then we have a delta-5 desaturase from Bioriginal. That's actually the same one that's at the top of the circle, it's just in there twice. And then we have a delta-6 desaturase from the

University of Hamburg, and another delta-6 elongase, this time from Amaethon. And then finally there's one of the gray arrows in here comes from the University of Hamburg also.

Q. Thank you. You mentioned the gray arrows. There's a few of them in this chart.

What does those arrows represent?

A. Those are -- so all the other color coding is for steps in the pathway to make a DHA. The gray arrows are accessory reactions that result in the production of higher amounts of EPA and DHA, but they are not part of the pathway that we've been talking about.

Q. And why did BASF add --

THE COURT: I don't understand. They're in there because they would result in higher quantities of omega-3s?

THE WITNESS: That's correct, Your Honor.

THE COURT: In the plant?

THE WITNESS: That's correct. They --

THE COURT: But they're not necessary to create the DNA. They just -- I don't mean DNA. They're not necessary to create the omega-3. It will be created without them, but they will enhance how much omega-3 is in the final product; is that right?

THE WITNESS: Yeah, that's correct. So they provide more starting material for the pathway to act on.

BY MS. ANAND:

Q. Well, is that part of the so-called Boost Project or what?
A. No. It's independent of the Boost. It's -- I think the other party has similar reactions, and they were explaining it's a couple reactions in front of the pathway so that the pathway has as much starting material as it possibly can to finally make the DHA. So they support the pathway but they're not part of it.
THE COURT: All right.
BY MS. ANAND:
Q. So you mentioned that BASF got some of these genes through collaborations with University of Hamburg, Amaethon, and Bioriginal. I'd like to walk through each of those collaborations a little bit further.
Can you please turn in your binder to the exhibit marked PX-451.
A. I'm here.
Q. Do you recognize this document?
A. I do.
Q. What is it?
A. This is the agreement between BASF and the University of Hamburg.
Q. Just to be clear, Dr. Andre, do you speak German?
A. I don't. And I think the reason you're asking me is because this is in German language.

Q. That's correct. So how are you able to identify this document as the agreement between BASF and the University of Hamburg?
A. Several reasons. One is as my role as project manager, I have a lot of German colleagues, and we can discuss German documents with their input, and on the first page it's also -- BASF is the same in English and German, and Hamburg is the same, and so I can recognize elements to know exactly what this is.
Q. Is this agreement currently in effect?
A. Yes, it is.
Q. And is this an agreement that BASF keeps in the ordinary course of business?
A. Yes.
MS. ANAND: Your Honor, we would move to admit PX-451.
MR. ZAHEER: Same objections, and also lack of foundation and hearsay, Your Honor.
THE COURT: All right. The Court will admit PX-451.
(Exhibit PX-451 received in evidence.)
MS. ANAND: Thank you.
BY MS. ANAND:
Q. Could you next turn in your binder to CX-1031.
THE COURT: Wait a minute. This pathway we just showed, is that the pathway that is being used by Cargill to

produce the product they propose it to sell?

THE WITNESS: Yes, Your Honor.

THE COURT: All right. And that pathway has been determined to infringe one or more patents?

THE WITNESS: Yes.

THE COURT: Are they the Group A patents that it infringes?

THE WITNESS: Yes, Your Honor.

THE COURT: All right. I may be anticipating something that's going to come later, but we've spent half a day on one witness. At this rate, I don't know when we'll finish.

MS. ANAND: We don't expect to take an extended period of time with Dr. Andre. Maybe half an hour, Your Honor.

THE COURT: Are you familiar with the results of the jury's verdict?

THE WITNESS: Yes, Your Honor.

THE COURT: And that it found infringement against all of the Group A patents?

THE WITNESS: Yes.

THE COURT: And that's it?

THE WITNESS: Yes.

THE COURT: Can Cargill or BASF, between them, change their pathway so that it doesn't infringe any of the

patents that they have found to be infringing? In other words, can they design around the type A patents?

THE WITNESS: Not before the expiration of those patents. So it would -- it's possible. It would take going back to the very beginning and designing a new elite event that doesn't infringe and then repeating all of the regulatory studies and the breeding that we've heard about that Cargill did.

So it would take a lot of time and a lot of money, and it's not possible to do it before the expiration of those patents.

THE COURT: Which is five years away?

THE WITNESS: That's correct.

THE COURT: So you think it would take, then, five years to design around the Group A patents?

THE WITNESS: At least. At least.

THE COURT: Okay.

MS. ANAND: Thank you.

THE COURT: You may proceed.

MS. ANAND: Thank you, Your Honor.

BY MS. ANAND:

Q. Could you please turn to CX-1031 in your binder.

A. I'm here.

Q. Are you there, Your Honor?

THE COURT: No. PX?

MS. ANAND: CX, Your Honor. CX-1031.

THE COURT: It's the last one?

MS. ANAND: Yes, Your Honor.

THE COURT: Okay. I got it.

BY MS. ANAND:

Q. Could you turn to Page 2 of that document which has the Bates number CSI 00390282.

A. I'm there.

Q. Do you recognize this document?

A. I do.

Q. What is it?

A. It's an English language translation of the agreement between the University of Hamburg and BASF.

Q. Does this translation reflect the terms of the Hamburg agreement as you understand them?

A. Yes.

MS. ANAND: We would move to admit CX-1031.

MR. ZAHEER: Objection. This is not a BASF document. This is a translation prepared by proponents, Your Honor.

THE COURT: Are you objecting to the translation? Did you have it translated?

MR. ZAHEER: I don't think that the witness has foundation to admit this exhibit because it's not his document.

THE COURT: Because what?

MR. ZAHEER: Because it's not a BASF document. This is a document that we prepared.

THE COURT: Well, I mean, he's worked with the document.

MR. ZAHEER: He hasn't worked with this English translation. This is a translation that we provided to them.

THE COURT: Well, he said he understood it, so I'm going to admit the document. I was worried about the accuracy of the translation, but if you -- if it's your translation, I'm not worried about it. All right.

(Exhibit CX-1031 received in evidence.)

BY MS. ANAND:

Q. Can you describe BASF's relationship with the University of Hamburg?

A. Sure. We knew that there was a professor there, Professor Ernst Heinz, who was an expert in the field that we were interested in, and we collaborated with his lab to identify genes and study the pathway for the synthesis of EPA and DHA, and through that collaboration, we discovered genes, we assembled the pathway as part of our proof of concept, and we identified, in particular, some of the genes in our elite event, and that includes the Acyl-CoA dependent desaturases and the bifunctional desaturases that we use.

THE COURT: What is the relevance of this document?

The pathway works without the genes from Hamburg. The only thing they do is enhance it. So what relevance does this document have to the damages issue?

MS. ANAND: Your Honor, our economic expert, Mr. Brian Napper, who will be testifying later in this proceeding, relies on this agreement, among others, to establish an ongoing royalty rate that would be appropriate for certain of the patents, and so we are --

THE COURT: That wouldn't -- we don't need all the details on what went on between Hamburg and BASF --

MS. ANAND: Sure.

THE COURT: -- to decide the damages.

MS. ANAND: Sure. Okay. We can move on. That's fine.

BY MS. ANAND:

Q. Do you understand -- do you have any understanding of who owns any patent rights that result from the collaboration between BASF and Hamburg?

A. I do. BASF owns those rights.

Q. How much did BASF pay for the rights conveyed under this agreement?

A. We paid in the form of payment to the researchers, and it was about 150,000 Euro per year.

Q. Did any patents result from the collaboration between BASF and the University of Hamburg?

A. Yes.

THE COURT: Did any what result?

MS. ANAND: Patents, Your Honor.

BY MS. ANAND:

Q. Could you take a look at PX-415 in your binder.

A. I have it.

THE COURT: Well, what does the -- what difference does all this make?

MS. ANAND: Your Honor, it matters because you have to rely on technologically comparable licenses -- licenses that convey technologically comparable patents in order to establish a royalty rate. As Mr. Napper will explain, the proponents' agreements were not comparable for a number of reasons. So he looked for his own agreements that would be technologically comparable.

Dr. Murphy, who will be testifying later by deposition, conducted a technological comparability analysis to determine that the patent rights licensed under these agreements were technologically comparable so that way so that Mr. Napper --

THE COURT: Is that a Group A patent?

MS. ANAND: Yes. Yes, Your Honor. It's part of Mr. Napper's analysis to determine whether or not these --

THE COURT: And he relied on Dr. Andre's findings to make that conclusion?

MS. ANAND: He did. He relied on Dr. Andre to identify the components of the BASF elite event LFK that came from these various patents.

THE COURT: Why is it comparable?

THE WITNESS: The genes that we license from the University of Hamburg, you're correct, it includes one of those accessory reactions. We also licensed three genes that are a part of the actual pathway.

THE COURT: I didn't understand you to say that. I thought all of them -- well, I mean, the Hamburg genes weren't in the patents that were infringed?

MS. ANAND: So maybe it might help to go back to PTX-402.

THE COURT: Well, wait a minute.

MS. ANAND: Sure.

THE COURT: The genes that were developed in the collaboration between BASF and Hamburg are not part of the patents owned by the proponents that were found to be infringed, were they?

THE WITNESS: I think the claims of those patents cover activities. They cover a delta-6 desaturase that's Acyl-CoA dependent, for example, which would be one of the genes that we discovered with Hamburg. The patents --

THE COURT: But they weren't part of the patents that the proponent owns, were they? They didn't need to

patent any of the genes that were discovered in the collaboration between Hamburg and BASF in order to make their patent valid?

THE WITNESS: They did use different genes, you're right, Your Honor.

THE COURT: Well, what you're saying is that these genes are comparable to the ones in the infringed patents?

THE WITNESS: I am. They have the same enzymatic -- they have the same characteristics. They have a different sequence, but they have the same activity and specificity as the other ones in the patent.

THE COURT: So that's why you say that this patent is similar to the infringed patents?

THE WITNESS: I think the enzymes in this patent are similar, yes, Your Honor.

THE COURT: What else is similar?

THE WITNESS: The pathway in itself. So as part of the -- one of the patents we got with the University of Hamburg describes all of the steps necessary to make EPA and DHA, and the patents that we were found to infringe also require the activity of all enzymes to make EPA, if I'm not mistaken.

So it describes activities, and it describes the combination of activities used to make EPA, and this technology that we worked on with the University of Hamburg

is -- also describes pathways and enzymes that can be used to make EPA and DHA.

THE COURT: All right.

BY MS. ANAND:

Q. I believe we had turned to PX-415 in your binder, and what is this document?

A. This is a '228 patent that came about from that collaboration, and it has inventors from BASF and the University of Hamburg.

THE COURT: Now, what is this we're looking at? PX-what?

MS. ANAND: PX-415, Your Honor.

THE COURT: CX?

MS. ANAND: PX.

THE COURT: Well, that's the same one.

MS. ANAND: Yes. Sorry, Your Honor, we're still on the same document. We would move to admit PX-415.

THE COURT: All right. PX-415 will be admitted.

(Exhibit PX-415 received in evidence.)

MS. ANAND: Thank you.

BY MS. ANAND:

Q. When did the '228 patent, PX-415, issue?

A. In September 2016.

Q. And when was the start date of the BASF/University of Hamburg agreement?

A. It was late 1998, I think in November.
Q. Does the span of roughly 20 years between the agreement start date and the patent issue date tell you anything about the development of omega-3 technology?
A. I think it reflects the long amount of time that it takes to develop your technology.
Q. Can you next turn in your binder to PX-532. Do you recognize this document?
A. I do.
Q. What is it?
A. It's an agreement between BASF and Amaethon.
Q. And is this a document that BASF keeps in its ordinary course of business?
A. Yes.
Q. Is this agreement currently in effect?
A. Yes.

MS. ANAND: We would move to admit PX-532.

THE COURT: PX-532 will you admitted.

MS. ANAND: 532, Your Honor. Thank you.

THE COURT: 532.

(Exhibit PX-532 received in evidence.)

BY MS. ANAND:
Q. How does that agreement with Amaethon relate to the BASF LFK elite event?
A. Amaethon discovered some enzymes. There were two enzymes

from Amaethon that are included in our elite event in this agreement. This is our license agreement to use those.
Q. And could you take a look at Annex I. It's on the second-to-the-last page. The Bates number is BASF 00197251.
A. I see it.
Q. What is shown in Annex I?
A. These are the patent rights that BASF licensed from Amaethon.
Q. Could you next turn in your binder to JX-65. This is a document that has already been admitted in this case, but these are different excerpts.
A. I'm there.
Q. Do you recognize the front page of this document?
A. I do.
Q. What is it?
A. This is the agreement between BASF and Cargill.
Q. Could you turn to the next page that you have in your binder, and this is BASF 15753. What is this document?
A. This document is the agreement between BASF and Bioriginal that was embedded in the contract with Cargill.
Q. Why was the BASF/Bioriginal agreement embedded within the contract between BASF and Cargill?
A. I wasn't there at the time to make the decision. I think it was included as relevant information in something that both parties should be aware of in the context of their own

agreement.
Q. Does the BASF/Bioriginal agreement relate to BASF's LFK elite event?
A. Yes, it does.
Q. How?
A. There are several enzymes, as well as a promoter that we licensed from Bioriginal and are contained in our elite event.
Q. Could you just take a look at Annex I of this document. It's BASF 15780.
A. I see it.
Q. And you can flip to the next page, actually, which is section B of Annex I.
A. Okay.
THE COURT: Wait a minute. What are the last three?
MS. ANAND: The last three digits of the Bates number are 781, Your Honor.
THE COURT: All right.
BY MS. ANAND:
Q. What is shown in Section B of Annex I?
A. These are the patent rights that Bioriginal had at the time that we obtained license to, and the top row pertains to fatty acid desaturases that are included in our elite event and are a part of the pathway, and the bottom row refers to a seed-specific promoter that we licensed.

Q. I want to switch topics a bit. You previously testified at length about the various work that BASF did to go from its collections of genes and promoters to the LFK elite event and the Cargill commercial product so we won't go into as much detail as that again.

But can we get PDX-404, please. Can you walk us through what is shown here on this slide?

A. This is a summary of the technology that we would need to come to a commercial product, which is shown at the very bottom, and Step 1 is identification of genes and promoters for the pathway. And I think that the blueprint, the patents that we found to be infringing, are part of Step 1.

Step 2 represents the vector technology that enables us to put the pathway into the plants. We talked about how hard it is to put that many genes into a plant. We licensed separate technology to do that.

Step 3 shows the optimization of the different genes to get the best pathway that we can.

Step 4 is our ability to transform canola, and this involved having a variety of canola that we could transform, which for BASF was the Kumily variety.

And Step 5 is all of the experiments and effort we went through to identify an elite event which involved transforming thousands of plants and screening for one.

And Step 6 refers to the breeding efforts of moving

the pathway out of the Kumily variety that we transformed and into Cargill's canola varieties.

And, finally, you have a product at the end. And I think your question earlier, Your Honor, about working around the patent, my answer was partly based on this slide, that in order to work around, we have to go all the way back to Step 1 and then proceed through all of these steps again, and that's part of why it's not possible before the expiration date of the patents.

Q. So you mentioned after Step 5 you would have an elite event LFK in canola. What did BASF do with its elite event LFK in that Kumily line?

A. One thing we did is we started to do experiments on it to generate data to submit to regulatory agencies, and the other thing we did was we gave it to Cargill so that they could start their breeding activities.

Q. The LFK, Kumily -- LFK elite event in Kumily, is this the same elite event in Kumily that Dr. Gromov was testifying about during his testimony?

A. Yes.

Q. And do you have an understanding of the relationship between this LFK Kumily that was used in the deregulation petition and the '541 patent, or Group D patent?

A. The LFK in Kumily was used to generate the data that went into our dossier that was submitted to the USDA, and that was

a public document, and it contained an oil profile from LFK in Kumily.

And the '541 patent claims were targeted very specifically to that oil profile of LFK in Kumily that we reported in that document to the USDA.

Q. And you said that once you identified this LFK elite event in Kumily, you gave it to Cargill. What did Cargill do with it?

A. Cargill bred with it. So they put it into their own canola varieties and developed the hybrid events that Mr. Gromov was talking about.

Q. Did those hybrid varieties, are those covered by the Group D patent?

A. No.

Q. Moving on. Are you aware of whether the proponents have ever offered to license any of their patents to BASF?

A. I understand that they have, yes.

Q. Can you generally describe the nature of those discussions between BASF and proponents?

MR. ZAHEER: Objection. Rule 408, Your Honor. They're asking about settlement communications.

THE COURT: Well, I think when the Court is in the damage stage of this proceeding, acting as a finder of fact, that settlement negotiations should not be admissible. The fact that they offered to license it, I think, is admissible,

but the details of the negotiations would not be. So to the extent that you're seeking those, the Court will sustain the objection.

MS. ANAND: That's fine, Your Honor.

BY MS. ANAND:

Q. Just to confirm, Dr. Andre, you said you were aware of discussions regarding licensing of patents by -- from proponents to BASF, correct?

A. Yes.

Q. Can you turn to PX-533 in your binder. What is this document?

A. This is a spreadsheet I prepared summarizing the costs of BASF through the development of this product.

Q. Do these numbers accurately reflect BASF's total costs on the omega-3 project to date?

A. They do. With -- I'll explain that in the early years, there are a lot of zeros, and I will note that we were collaborating as early as 1998. So there may be some small costs that don't show up, but I think that overall it's pretty accurate.

Q. Is this information information that BASF keeps in the ordinary course of business?

A. Yes.

MS. ANAND: We would move to admit PX-533.

MR. ZAHEER: No objection.

THE COURT: Okay. PX-533 will be admitted.

(Exhibit PX-533 received in evidence.)

BY MS. ANAND:

Q. Over what period of time does this spreadsheet cover?

A. From 1999 until 2018, the end of 2018.

Q. And in those roughly 20 years, how much has BASF spent on the omega-3 project?

A. At least $202 million.

Q. If BASF were to try to design around the Group A patents, do you have an understanding of how much that would cost?

A. I do. So if we had to recreate an elite event as part of that work-around, we started elite event production, we can say, around 2012, and if you add the dollar amount from there, it's over $100 million.

Q. What does the omega-3 project mean to BASF?

A. It's a really important project that we've invested in for nearly 20 years now, and almost $200 million, and we saw from Dr. Gromov the amount of money that we're going to be getting back is -- takes a while to be positive, and it's not a huge amount. So it's -- this investment by BASF is signaling that we want to do something good, and we care about the sustainability of the product and sending that message to the world.

MS. ANAND: We pass the witness, Your Honor.

MR. ZAHEER: May I proceed?

THE COURT: You may.

CROSS-EXAMINATION

BY MR. ZAHEER:

Q. Hello, again, Dr. Andre. How are you?

A. Good.

Q. Good to see you. You recall that I took your deposition in April?

A. Yes.

Q. And you recall that at the time you were testifying as a corporate representative, or what we call a 30(b)(6) witness?

A. Yes.

Q. And you understood at the time that you were speaking for the entire company and that your testimony would bind the company?

A. Yes.

Q. And you also understood at the time that you were required to prepare for your testimony, meaning you were required to identify BASF's corporate knowledge on the subject matter that was covered, right?

A. That's right.

Q. And one of those subject matters was BASF's licenses. Do you recall that?

A. I do.

Q. And you recall you testified that you were prepared to provide testimony on that subject matter at the time?

A. I spent a lot of time preparing.
Q. Understood.
And you also recall that I told you that were you to come to trial with new information that you were not able to provide at the deposition, then we would be able to identify that as an inconsistency in your testimony?
A. Sure.
Q. So let's talk about the Hamburg agreement, and that's PX-451. I asked you about that agreement. Do you recall that?
A. I do. I think you asked me about agreements in general, and then I volunteered that we had an agreement with Hamburg.
Q. Right. And you recall that I asked you what BASF had licensed under that agreement. Do you recall I asked you that question?
A. I do.
Q. And you recall that your answer was that you didn't know what was licensed under that agreement?
A. That's true.
Q. And do you recall that I asked you if BASF had ever paid a royalty to the University of Hamburg? Do you remember?
A. I think so, yeah.
Q. And do you recall your answer?
A. I don't think I knew at the time.
Q. You said that you did not believe that BASF had ever paid

any license fees to Hamburg. Do you recall that?
A. Yes.
Q. And you also recall that at the time I didn't have a copy of the agreement, so it's not something that I could have shown you to try to question you on that subject matter?
A. That's right.
Q. So the only way we could have known at the time during your corporate representative testimony about what the Hamburg agreement provided was if you had told us; is that fair?
A. It's fair.
Q. But you were unable to tell us any information because you don't know what was in the agreement?
A. Not everything that was in the agreement. I knew of it. And to this day, I don't think we've paid still any license fees to Hamburg.
Q. Because it's not a license agreement, right?
A. It's a collaboration agreement.
Q. It's a service agreement, isn't it?
A. I would call it a collaboration agreement.
Q. Well, let's take a look. I think you testified earlier that the date of the agreement is 1998?
A. That's right.
Q. And were you in any way involved in the negotiation of the Hamburg agreement?

A. Definitely not.
Q. What were you doing in 1998?
A. Graduating from high school.
Q. So you were not with BASF at the time?
A. No, I wasn't.
Q. And so you don't have any firsthand knowledge about the actual negotiations between BASF and Hamburg over this agreement?
A. I don't.
Q. You have no idea if Hamburg agreed to accept the payments under the agreement because of the intellectual property aspects or because of the service aspects or something else, do you?
A. I assume that all of those factors factored into the agreement in the end, but I don't know -- I don't know the details.
Q. Well, you're making an assumption, and I think the -- you may recall the Judge said something about making assumptions. You don't know, right?
A. No, I don't know.
Q. You don't know what the underlying economics behind the actual rates and monetary compensation under the agreement was, correct?
A. Only what I've read in the agreement.
Q. And you have no idea if at the time when this agreement

was signed in 1998 if Hamburg and BASF expected this to result in any patents, do you?
A. The agreement has some language in it about who would own the technology and that BASF had the right to file for patents.
Q. Right. But you don't know, because you were not there, whether they had an expectation that patents would actually result from this agreement, correct?
A. I don't know, but the language in there indicates to me that they had an expectation.
Q. And anything that you actually know about this agreement is from what others at BASF have told you; is that right?
A. More or less, yes.
Q. And who have you talked to about the agreement?
A. Stephan Krieger is one person; Joerg Bauer, a little bit; and probably others that I can't name.
Q. And so if we wanted to know what the actual thinking was behind the agreement, we should talk to the folks who actually know about the agreement or somebody at Hamburg. Would you agree with that?
A. Or read the agreement. I mean, it is what it is, and I don't think there's many agreements where the original negotiators are always available.
Q. You mentioned in your direct testimony that BASF gained rights to the '228 patent, which is PX, I think it's 415. We

don't have to bring that up. Can you show me -- let's go back to the Hamburg agreement, which is 451.

Can you show me where in the Hamburg agreement it refers to the '228 patent?

A. It doesn't refer specifically to that patent.

Q. Does it refer generally to that patent?

A. No. It refers to that BASF would own the results and that BASF could file for patents, and that was an example of a patent that came about from this agreement.

Q. And that is information that you've learned since April; is that right?

A. I knew of the patent and of the agreement. Piecing it all together was recent, yes.

Q. Right. Because when I asked you what was licensed under the agreement, you said you didn't know, right?

A. That's right.

Q. And so since the '228 patent is not mentioned in the agreement, then can we agree that the folks who actually negotiated the rates and the monetary compensation under the agreement, they could not have had the '228 patent in mind, right?

A. No, not that specific patent.

Q. Okay. And I think you testified earlier that you don't -- you don't read German, right?

A. I do not.

Q. But you still -- sometime before July, you spoke to Mr. Napper, the BASF expert, about the substance of this agreement, right?
A. That's right.
Q. And at the time you did not have a translation of the agreement; is that right?
A. No, I didn't.
Q. So you had not read the agreement when you told Mr. Napper about the contents of the agreement; is that right?
A. I hadn't read the German version, but it had been described to me by my German-speaking colleagues.
Q. So did Mr. Napper talk to your German-speaking colleagues or did he talk to you about it?
A. I know that he talked to me.
Q. So if he's relying on you, then he's relying on your second-hand information from your German-speaking colleagues about this agreement because you didn't read it before you talked to him about it, right?
A. Not the German version.
Q. Well, you didn't read the English version, either?
A. No. I didn't have that.
Q. Because that English version was provided by our side, right?
A. That's right.

Q. So you had never read this agreement before you told Mr. Napper about what's in the agreement --

THE COURT: You've been over that enough. Move on.

BY MR. ZAHEER:

Q. Let's go to paragraph 1.1. Sorry. I apologize. Let's go to the English version, which is in your direct binder. It's CX-1031.

And you see in the middle there, it says, "Specifically, this involves the identification, cloning, and characterization as well as the expression in homologous and heterologous hosts of various fatty acid biosynthesis genes."

A. I see that.

Q. So this was an agreement to search for genes, right?

A. And to express them in hosts and see if we could make EPA and DHA.

Q. Right. But at the time this agreement was entered, this was a research project. Wouldn't you agree with that?

A. Yes.

Q. And after this agreement in 1998, BASF had to do a ton of work in order to figure out how to make those enzymes work together to produce DHA in a plant seed, right?

A. We did have work to do.

Q. Right. It took six or seven years after this before you were able to do that?

A. Well, in a plant seed, we had DHA in 2004 that was

published in 2005. So that's what -- this agreement expired -- or ended in 2001. It's still active; it's not expired. So this was a couple years afterwards, yes.

Q. Well, I was referring actually to the time you entered.

So when the folks sat down to enter into this agreement, neither BASF nor Cargill -- excuse me -- neither BASF or Hamburg knew how to actually get DHA in a plant seed, right?

A. We hadn't done it yet.

Q. That took six more years after this?

A. Starting from '98, yes.

Q. So when BASF paid whatever it paid under this agreement at the time in 1998, and when they agreed to that amount of payment, they weren't paying for the technology that it would actually take to get DHA in a plant seed; isn't that fair?

A. I honestly don't know because I don't know the details, but I think we must have had a pretty good idea if we said this work was for making DHA and these are the things that we needed to look for to do it.

Q. You set out on a research project to try to figure it out, right?

A. I think so.

Q. But the answer was not something that you actually contracted for; isn't that fair?

A. I don't understand the question.

Q. The actual solution, the solution to producing DHA in a plant seed efficiently and effectively, that's not something that you bought when you bought this agreement, right?
A. We got any results out of the agreement, is my understanding, and in the agreement did result in producing EPA and DHA eventually in plant seeds.
Q. After six years, right?
A. Yes.
Q. Were BASF and Hamburg competitors in any market or in this market when they entered into this agreement?
A. I don't think so.
Q. And I think that you mentioned this earlier but let me just confirm. This is not a license agreement, right?
A. It's a collaboration agreement, is my understanding.
Q. Can we go to paragraph 2 on Page 3, please. You see there under "compensation," it says, "To compensate for the services of the university." Do you see that?
A. I see that.
Q. Isn't it fair to call this a service agreement rather than a license or royalty agreement?
A. I would call it a collaboration. To me, a service is we send you a sample, and you analyze it with no thought. This was a coming together of minds, and we got publications and results out of it. So I still think of it as a collaboration.

Q. But it's in the agreement, it says you're being --

THE COURT: Okay. What difference does it make? Let's move on.

BY MR. ZAHEER:

Q. This agreement expired in 2001; is that right?

A. Yes.

Q. And the '226 patent, which is the patent that you linked to this agreement, that wasn't issued until 2018, right?

A. '16, I think. 2016.

Q. Well, it wasn't issued until 18 to 20 years later?

A. Much later, that's right.

Q. Let's go to the University of York agreement, which is PX-532, please. Let's go to Page 15, which is the Bates ending in 250.

This agreement was entered into in 2005, correct?

A. That's correct.

Q. And you didn't have any involvement in the negotiation of this agreement either, right?

A. No, I didn't.

Q. So you don't know why the University of York accepted the royalty arrangement that is set forth here, correct?

A. They must have found it agreeable, is all I can say. I don't know any other details.

Q. Right. You'd have to guess, right?

And you recall that when I asked you about this

agreement at your deposition, you said that you didn't even know if you had ever seen it. Do you recall that?
A. I honestly don't, but I'll take your word for it.
Q. And all of the information you had about this agreement at the time was from Andy Beadle?
A. Yeah. As part of my -- when I interviewed him in preparation.
Q. And Mr. Beadle is the same person that we saw on the deposition video last week. Do you recall that?
A. I do.
Q. And you recall that he couldn't remember much of anything about the MTEA agreement from 2008?
A. That's right.
Q. So are you relying on Mr. Beadle's recollection of an agreement from 2005 even though when he testified he couldn't remember the details of an agreement from 2008?
A. I guess I was. I mean, I've read the agreement since.
Q. Were the University of York and BASF competitors at the time they entered into this agreement?
A. I don't think so.
Q. This is what you would call a collaboration, right?
A. This is really more of just a license.
Q. Did this agreement license the use of an Acyl-CoA pathway to obtain DHA in a plant seed?
A. I think it is specific to a couple of enzymes, is my

understanding.
Q. Well, when I asked you at your deposition you said it covered a single enzyme, right?
A. I might have.
Q. So if it covered more than that, then that would -- that second enzyme wouldn't have been important enough for you to remember; is that fair?
A. Well, I think I had a lot of information to cover at that deposition.
Q. All right. Let's go to JX-65, please. That's the commercialization agreement with Bioriginal that you discussed.

MR. ZAHEER: And let's go to the Bates ending in 529, Mr. Boles, please.

Sorry. In JX-65 we want to go to the Bates ending in 529. I'm sorry, 530.

BY MR. ZAHEER:
Q. Well, let's just go through the agreement.

You also didn't have any involvement in negotiating the Bioriginal agreement, right?
A. No.
Q. And you also testified that this license was on a single enzyme at your deposition. Do you recall that?
A. Not exactly, but if that's what I said, that's what I said.

Q. Right. You said -- you recall testifying that, "I think this license is a -- on a desaturase, but I can't say for certain which one"? Does that sound right?
A. That's right.
Q. So at the time you thought there was just one desaturase or one enzyme that was licensed under this agreement, right?
A. I don't think I knew for sure.
Q. Just one step in the pathway?
A. Again, I don't think I knew for sure.
MR. ZAHEER: Let's go to the Bates ending in 764, Mr. Boles, and let's blow up that first large paragraph.
BY MR. ZAHEER:
Q. Do you see there it says in the middle, "Such amount of a percentage basically shall be 2 percent of the net sales price"?
A. I see that.
Q. Right. And so this agreement provided for a 2 percent royalty; is that right?
A. It's my understanding.
Q. And so it was a 2 percent royalty on a single enzyme; is that right?
A. No. In this case, it's -- I think I went through in my direct testimony -- two enzymes and a promoter.
Q. Okay. And that's -- that was the value that BASF got for the 2 percent, right?

A. That's what I understand.
Q. And, again, in your deposition you thought it was just on a single desaturase. Do you recall that?
A. I think I wasn't sure.
Q. Was Bioriginal a competitor of BASF when they entered into this agreement?
A. I don't think so.
Q. You mention that --
MR. ZAHEER: We can take that down.
BY MR. ZAHEER:
Q. You mention that BASF and Cargill -- strike that.
You mention that BASF had spent more than $200 million investment in developing the technology that it ultimately provided to Cargill in its agreement, right?
A. Yes.
Q. And the way that you were compensated for that or will be compensated is a 60/40 profit share; is that right?
A. That's right.
Q. So in order to recoup BASF's investment for all of the investment that you put into the technology, you're expecting a return on that 40 percent investment, right?
A. That's right.
Q. And that 40 percent is what Cargill is effectively paying for getting the technology from you, right?
A. And all of the regulatory work -- I think there's a lot

built into that number beyond simply the technology.
Q. Right, but we've heard about that there was a hand-off in 2015, right?
A. Yes.
Q. And you recall that when you handed it off to Cargill, the technology you were giving them was getting somewhere between 5 and 6.5 percent EPA?
A. I think those are the numbers that are in our regulatory documents, yes.
Q. All right. So when you handed it over to Cargill, you gave them a product that was below 7 percent EPA, right?
A. I think when we handed it to them, it actually had more, and later experiments that went into our regulatory work were more like the numbers that you're getting.
Q. And it was less than 1 percent DHA; is that right?
A. Yes.
Q. And that's what Cargill is paying you 40 percent for; is that right?
A. I think they're paying us 40 percent also for the regulatory work that we do, which is an enormous amount of work. So I go back. I think it's more than just the technology that they're paying for.
Q. You talked about non-infringing alternatives. Can we pull up JX-61 at Page 40, please. When we talk about BASF's pathway --

MS. ANAND: Objection. I don't have JX-61, at Page 40, in my binder.

MR. ZAHEER: It's in the sleeve.

BY MR. ZAHEER:

Q. Do you recognize that? It's in evidence. That's the deregulation petition.

A. I know it.

Q. And if you flip it over, that's Page 40.

And if we can go down, Mr. Boles.

The Table 4, that describes all of the enzymes in the pathway, right?

A. That's right.

Q. Okay.

And, Mr. Boles, can we pull up PDX-403 side by side with the '357 patent.

You were asked some questions during your direct about designing around the Group A patents. Do you recall that?

A. I do.

Q. And if we look here, we can see that if we're looking at the pathway from ALA to DHA, it takes five enzymes, right?

A. That's right.

Q. And we've color coded it in the sort of BASF style here, but if you look to the right, if we look at claim 33 of the '357 patent, you can see there that each of those steps is

covered by part of the claim, right?
A. I see that.
Q. Okay. And so you would agree with me that this claim covers the entire pathway to DHA, right?
A. It doesn't list a specific delta-4 desaturase enzyme, but it does mention that the cell is capable of synthesizing DHA.
Q. And we can agree that since it's capable of synthesizing DHA, then that would mean that there's a delta-4 desaturase, right?
A. It's not listed. It -- presumably, that activity is there, but, I mean, to get down to it, there's other ways to make DHA.
Q. But when BASF does this in its own work, it uses a delta-4 desaturase, right?
A. We do, yes.
Q. In order to satisfy that part of the claim, right?
A. In order to make DHA, yes.
Q. Which satisfies that part of the claim, right?
A. It does.
Q. Right. And if we go to the next highlight, we can also agree that BASF also uses the part of this claim that covers an Acyl-CoA desaturase at three different positions in its pathway?
A. Certainly, at two positions.
Q. Right. And likely at three, right?

A. Yeah. I think we wrote something like that.
Q. Can you, sitting here today, think of how BASF would design around this patent, the '357 patent, to get DHA in a seed without using the enzymes that are shown here or without using an Acyl-CoA desaturase?
A. Sure. We could use the PKS pathway, which is completely -- uses completely different enzymes.
Q. Right. And are you aware of anybody successfully producing a commercial product in a plant based on the PKS pathway?
A. Commercial product, no, but people have successfully produced EPA and DHA with that pathway.
Q. But not at commercial levels, right?
A. Well, it depends on their business decision about what's commercial.
Q. How long would it take for BASF to develop a PKS-pathway-based product, if that's even possible?
A. It would take a long time.
Q. More than even five or ten years, right?
A. I would say so, yeah.

MR. ZAHEER: Pass the witness.

REDIRECT EXAMINATION

BY MS. ANAND:

Q. Just a couple follow-up questions. When Mr. Zaheer asked you about the various agreements at your deposition, did you

have those agreements in front of you?
A. No.
Q. And just a few minutes ago I believe Mr. Zaheer asked about the work done by BASF and the 40 percent positive product EBIT split. Do you remember that?
A. Yes.
Q. How much did BASF pay for the regulatory work that it did?
A. That's probably half or more of the 200 million that we talked about.
Q. And under the BASF/Cargill agreement, BASF was responsible for conducting that regulatory work and deregulation, correct?
A. Yes.

MS. ANAND: I have nothing further.

THE COURT: Can this witness be excused?

MR. ZAHEER: Yes, Your Honor.

MS. ANAND: Yes, Your Honor.

THE COURT: All right, Dr. Andre. You may be excused with the understanding that you will not discuss your testimony with any other witness in the case. Since you've been excused, you may remain in the courtroom, if you wish, or you can go back to your regular job.

THE WITNESS: Thank you, Your Honor.

(The witness was excused.)

MS. SHAW: Your Honor, I believe at this time we'd like to play the deposition of Dr. Murphy.

THE COURT: Always a dangerous thing to do in the afternoon.

MS. SHAW: I agree.

THE COURT: But if that's what you want to do...

MS. SHAW: I think this might be a good time to do it.

THE COURT: All right.

MS. SHAW: Would you like a copy of the transcript as well, Your Honor?

THE COURT: Well, yes, it couldn't hurt.

MS. SHAW: I believe there's some exhibits in there that we'd seek admission of, as well.

THE COURT: I remember one deposition the witness spent the whole time looking at a document and we didn't have the document. I can't remember whose witness it was. He spent his whole time looking at a document, and we didn't have the document.

MS. SHAW: Your Honor, may we go ahead?

THE COURT: Yes.

(The video deposition of Denis J. Murphy, Ph.D., was played in open court.)

THE COURT: We'll now proceed with cross-examination.

MS. SHAW: Before we begin the cross-examination of Dr. Murphy, we would move to admit PX-416, PX-417, and PX-927, which were not objected to.

THE COURT: Also, PX-415, or was that already in?

MS. SHAW: PX-416, 417, and 927.

THE COURT: All right. Those exhibits will be admitted.

(Exhibits PX-416, PX-417, and PX-927 received in evidence.)

(Video played in open court.)

MS. SHAW: Your Honor, I believe there's a short redirect, if we could play that.

THE COURT: All right.

(Video played in open court.)

MR. ZAHEER: As a housekeeping matter, we would move to admit CX-2000.

THE COURT: What was that?

MR. ZAHEER: CX-2000.

THE COURT: CX-2000 will be admitted.

(Exhibit CX-2000 received in evidence.)

MR. ZAHEER: Thank you.

THE COURT: All right. What do you have next?

MS. SHAW: Your Honor, we have our last witness, but I would appreciate a short break before we brought him on, if that would be possible.

THE COURT: All right. We'll take a 20-minute recess.

(Recess from 3:56 p.m. to 4:15 p.m.)

THE COURT: All right.

MS. SHAW: Your Honor, we call Brian Napper.

(The witness was sworn.)

THE COURT: How do you spell Mr. Napper's last name?

MS. SHAW: N-a-p-p-e-r.

BRIAN W. NAPPER, called by BASF, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MS. SHAW:

Q. Good afternoon. Could you please introduce yourself to the Court?

A. Yes. My name is Brian William Napper.

Q. And, Mr. Napper, where are you from?

A. Well, I am originally from Southern California, and I live now in Northern California, just outside of San Francisco.

Q. And where do you work today?

A. Currently, I am Senior Managing Director at FTI Consulting, Inc., which is a global financial services group, and consulting in economics consulting, as well. I'm currently the head of their global intellectual property practice. I'm the group leader. We have a worldwide group

that does intellectual property services.
Q. And what does the IP Service Group do?
A. Generally, to break it down into three different areas, service areas, one is we do valuations of intellectual property with respect to acquisitions and divestitures. So, for example, for a private equity company, taking an equity position in a company that has a lot of technology and intellectual property, we will advise those private equity folks as to their acquisition or divestiture; if they want to sell it off, how much is the IP worth. So I call that the valuation part of our group.

The second part is disputes, such as the work I did on this case, where we provide economic damages analysis primarily in the space of intellectual property, and within that construct probably the majority of that is also patent; although, I do a little bit of trademark, copyright, and trade secrets damages work.

And then, lastly, I actually happen to be a monitor for the European Commission related to intellectual property. For the next ten years -- I'm two years into it -- I'm monitoring the behavior of a company licensing financial indices into the credit default swap marketplace, so I report to the EC on their activities, whether their licensing behavior is appropriate.
Q. And how long have you worked in the area of intellectual

property valuation and damages quantification?
A. Ever since I had a full head of hair. It's been a long time. About 30-plus years now I've been focusing my consulting work in intellectual property.
Q. Now, Mr. Napper, did you prepare some slides to help the Court evaluate your testimony today?
A. I did.
Q. Okay.
MS. SHAW: Could we take a look at PDX-602?
BY MS. SHAW:
Q. Could you please tell us about your educational background.
A. Yeah. As indicated on the slide, I graduated from the University of California - Berkeley with a B.S. degree in accounting and finance.
I subsequently -- skipping down to -- I was an instructor. I took a course for the technology transfer and commercialization, which is helping universities to, essentially, value their intellectual property and, essentially, license that intellectual property into the private sector. I also subsequently taught that course at UC - Berkeley.
I instruct periodically as a guest lecturer on patent damages at law schools, such as Northwestern, NYU, Catholic University, and, as I indicated, I'm currently the

senior manager and director at FTI. I was also the global leader of Deloitte & Touche's intellectual property group.

Q. Can you tell us a little bit about the type of clients you work with.

A. Well, somewhat reflective of the Silicon Valley, I consulted with clients in the biotech space, for example, Chiron, before they were acquired by Novartis. I did quite a bit of work with them in the DNA sequencing, PCR promoter field.

I've also done quite a bit of medical device, in terms of intellectual property, but it also runs the gamut to doing work in the telecom industry and all other types of industries.

I'm also currently working, interestingly enough, on three different patent cases and projects related to seed planters, which is kind of somewhat tangential to this work on this case.

Q. And have you testified at trial on matters involving damages or the value of patents?

A. I have. I've testified both in trials and in international arbitration as it relates to patent damages, probably about 50 times now.

MS. SHAW: Your Honor, at this time we would move to qualify Mr. Napper as an expert in the fields of intellectual property valuation and damages and tender him as an expert.

THE COURT: Any voir dire?

MR. SUNG: No objection, no voir dire.

THE COURT: You may proceed.

MS. SHAW: Thank you, Your Honor.

BY MS. SHAW:

Q. Mr. Napper, when were you retained in this case?

A. October of 2018.

Q. And what were you asked to do in this case?

A. I was asked to look at the damages claim for -- on behalf of the opponents and looking at the proponents' damages claim, and also to address the subject of injunctive relief.

THE COURT: The subject of what?

THE WITNESS: The subject of injunctive relief or irreparable harm, Your Honor.

THE COURT: Okay.

MS. SHAW: Could she put up PDX-603.

BY MS. SHAW:

Q. Could you describe, Mr. Napper, what we see here?

A. Yes. This is just a brief listing of the type of information I had available to me in performing my work in this matter. It describes, obviously, lots of deposition transcripts, lots of financial records, e-mails. I also conducted discussions and interviews with BASF and Cargill professionals that are familiar with this project. And then, of course, I've either reviewed the trial testimony or

actually attended much of the trial here.
Q. And are you aware of the verdict that has now been rendered in connection with the liability phase of this case?
A. I am.
Q. Has this impacted your analysis at all?
A. Somewhat, yes. With respect to the Group D patents, that verdict has had an impact. And, of course, I had quantified damages on other groups of patents that were asserted by proponents, and, obviously, that's not relevant anymore.
Q. With respect to the Group D patents, do you have an understanding of whether there would be any future damages arising in connection with the Group D patents?
A. Based upon my understanding, the Group D patent has been found to be infringed by BASF's elite event, but that the hybrid canola lines being used and continuing to be researched by Cargill are not using the elite event, and so, therefore, I don't see a path to damages.
Q. Have you formed an opinion on whether an injunction should issue in this case?
A. I have.
Q. And what is your opinion?
A. I do not believe, based upon the facts and circumstances as I've reviewed them, that injunctive relief would be the appropriate remedy here.
Q. Have you formed an opinion on what future damages would

be in this case?
A. I have, as well.
Q. And in what form would those future damages be?
A. Based upon my analysis of the information, I believe the form of a reasonable royalty would be adequate to compensate for the found infringement.
Q. So, Mr. Napper, I'd like to talk first about the request for injunction, okay? Could we take a look at PDX-639.
Mr. Napper, could you describe what we see here?
A. Yes. I'm not a legal expert, but my understanding is that injunctive relief is guided by the *eBay* factors, what are commonly known as the *eBay* factors.
THE COURT: What are we looking at here?
MS. SHAW: This is a demonstrative slide that Mr. Napper prepared that I --
THE COURT: It's not an exhibit?
MS. SHAW: It's not an exhibit.
THE COURT: Go ahead.
THE WITNESS: Thank you, Your Honor.
And so this just identifies sort of the *eBay* factors, as we call them in the business, and puts some structure around the inquiry as to whether injunctive relief is appropriate, and I've looked at these.
BY MS. SHAW:
Q. Okay. And did you consider these factors in conducting

your analysis on whether an injunction should issue?
A. I did. I considered the opinions of Mr. Jarosz and the analysis he performed, and I performed my own independent analysis of many of these factors, as well, and it's my understanding, I believe, that all four factors need to be met for injunctive relief to be appropriate.
Q. Okay. I'd like to talk about the first factor we see here, which is whether the patent owner has suffered an irreparable injury.

Have you formed an opinion as to whether proponents have suffered an irreparable injury under *eBay* factor number 1?
A. I've separated my opinion into two kind of periods, if you will.

The first is, based upon the information I've reviewed, I don't believe that there is currently an irreparable injury to proponents as a result of the found infringement, so currently, as we sit here today.
Q. Why do you say that?
A. Because as its fairly well-known now, there have been no sales of product by Cargill, nor will there be sales for what sounds like at least another year. Obviously, the proponents also have had no sales of products that, at least in part, may be using the asserted patents or the infringed patents.
Q. If there are no current harms, does your inquiry and/or

eBay factor 1 end there?
A. No. I also looked to the future to see if there's irreparable harm in the future.
Q. And how did you go about looking at future harm?
A. As I indicated, I'm familiar with many of the facets, if you will, or inquiries under irreparable harm or irreparable injury, and I've looked at those, done my own analysis of those, and I've also reviewed Mr. Jarosz's analysis of irreparable harm.
Q. And were you here in the courtroom yesterday when Mr. Jarosz testified?
A. Was that really just yesterday?
Q. Yes.
A. Yes, I was. Sorry.
Q. Okay. And do you recall that Mr. Jarosz testified that he believes there will be three types of harm? Do you recall that?
A. I do recall that.
Q. And do you recall what those were?
A. Yes. Mr. Jarosz separated them into buckets, if you will, one being margin erosion, so price decline and cost increases.

The second was what he characterized as impact on product development, sort of research development and proponents' product development.

And the third was he was looking at, ultimately, the impact on customer relationships.

So that was my takeaway from Mr. Jarosz; that it was those three categories of harm that he thought were unquantifiable and led him to conclude --

THE COURT: What was the second one?

THE WITNESS: The second one was product development, which had two subsets, Your Honor. The first was sort of the inability of the proponents to have moneys in the door in order to invest in improvements to their current potential future offering, and I got a sense that it also impacts other research and development at CSIRO.

BY MS. SHAW:

Q. I'd like to talk about each of these three things a little bit more closely. Let's first talk about the first harm identified by Mr. Jarosz, which was margin erosion -- is what you described it as, I believe.

Do you agree that margin erosion is a harm that Nuseed will suffer if BASF and Cargill are on the market in the future?

A. I do not.

Q. Why?

A. Because the situation in this market is rather unique. What we have here is an existing market. We have the fish oil supplied market, and we have multiple suppliers of fish

oil to fish feed manufacturers. So that's an existing market that both the proponents and the opponents are trying to sell future products into.

So it's not a brand-new market, but it's a market that has certain already-established dynamics. Those dynamics would include pricing, because fish feed manufacturers, as I understand it, are sensitive to the price of fish oil. And it's the fish farm's major expense, so price is already established with the fish oil, and so that's an issue. And then the cost information, which we'll get into, I didn't see -- I thought the information that Mr. Jarosz relied upon for reduced cost, that in his opinion may not occur, is inconsistent with the information I reviewed in this case.

Q. Why is it relevant that both parties will be selling into an already-existing market?

A. Because the pricing, as I indicated, has already been established. The pricing is of traditional fish oil, and, in fact, both companies -- to save time I'll say "Nuseed" and "Cargill," if you don't mind.

Nuseed and Cargill are both anticipating to price their product contingent upon what the fish oil prices of traditional fish oil, the chopped-up anchovies, et cetera. So it's tied into those prices, and they can't go too far above that; otherwise, they won't have opportunities.

Q. Do you have an opinion, Mr. Napper, as to whether Nuseed would lose sales to Cargill in the future if an injunction does not issue?

A. I do have an opinion, and I don't think it's likely that Nuseed will lose sales to Cargill in the future, and that's because of the fish oil supply gap.

Q. Mr. Napper, could you turn in your binder to CX-0928, which I believe is already in evidence?

THE COURT: Well, if there are only two competitors outside of fish oil in the market, the only way that CSIRO would not lose sales to Cargill is if Cargill was able to fill the entire market, or Nuseed would be able to beat them on price. It's hard for me to understand why they wouldn't lose sales to them.

THE WITNESS: It's an excellent observation, Your Honor, honestly, but it's a bigger market than just the two plant-based omega-3 fish oil future suppliers.

THE COURT: Well, how do we know how big the market is? I mean, both sides agree that the fish oil is a finite resource and it's being overexploited, as so many other resources are, and -- but, after all, Cargill is a worldwide, large company, and I just don't understand why they couldn't increase their production of oil to, at least part of the time, dominate that portion of the market which is not consumed by fish oil.

As they progress, their cost of production will go down and their value of what they produce will go up so that they'll become more competitive with fish oil. And because of their size, it would be easier for them to dominate the market than it would be for CSIRO, would it not?

THE WITNESS: It's a fair observation, Your Honor. Cargill appears to have more resources as a group.

From what I heard from Dr. Gromov, though, GEOS is a part of Cargill, so they're somewhat -- they may not have massive exposure, if you will, or access to the footprint that you're referring to of Cargill as a big entity. That's just one observation.

THE COURT: Well, Cargill is a big entity, and so is the Australian government.

THE WITNESS: That's fair. I would agree with that observation, yes, and there's resources available in both those regards.

And so it's an interesting observation, because I looked at both companies' projections, Cargill's projections and Nuseed's projections, and I see this market gap that you just referred to, and it's spot-on. And if it were really that easy, and there were only two plant-based suppliers of omega-3, why -- and both parties are aware of that gap, why aren't they projecting to fill that gap within a couple years?

But, in fact, both parties project to 2027 that Nuseed will only capture 35 percent of that gap and Cargill only about 10 percent of that gap, so it tells me that based upon their projections --

THE COURT: Well, it seems to me that CSIRO's projection seems reasonable, but I don't think Cargill's does; that they can only fill 10 percent of that gap. But this is only one factor. You go ahead with everything else.

MS. SHAW: If we could put up PDX-637. This might provide some further clarity.

BY MS. SHAW:

Q. Mr. Napper, can you describe what is shown here?

A. Yes. This is a graph that I put together based upon information produced, documents produced in this matter. The top line is the total projected fish oil deficit. That's the dark blue. That's based upon Nuseed's identification of that fish oil deficit that Your Honor referred to. With the traditional fish oil flattening out, it's not going down, but the demand's still, in fact, rising and that deficit occurs.

And what I've done here is taken Nuseed's projections, the only projections they produced in this matter, and tracked that to the red line. I've tracked the light blue, or Cargill's projected volume based upon their 2019 projections, and then combined them for the purple line. And, you're right, it appears that it's only about 200,000

metric tons versus what they have projected to be 350,000 metric tons by the time it hits 2027.

So I thought that might provide some clarity as to --

THE COURT: Yeah, I understand what you're saying.

THE WITNESS: -- the combination.

BY MS. SHAW:

Q. And, Mr. Napper, have you seen any documents to support the projections shown in the Cargill blue line?

A. I have.

Q. And what documents have you seen?

A. The -- I'm sorry, the Cargill light blue line?

Q. Yes.

A. Sorry. Yes, I've seen documents to support all of these lines. So sorry.

THE COURT: I've seen them, too. I don't think we need to spend any more time on this issue.

MS. SHAW: I don't plan on pulling them out, Your Honor.

BY MS. SHAW:

Q. Now, did you hear Mr. Jarosz testify that Nuseed's product and business model is scaleable?

A. Yes, I heard that testimony.

Q. And do you have an opinion regarding Nuseed's ability to scale up and meet the full market gap?

A. Yes. Based upon the information I reviewed, I did not see a concrete plan of Nuseed in terms of its ability to scale its infrastructure to meet this opportunity we just discussed. I did not see a strategic plan.

The only thing I did review is Nuseed's projections, which is, as I heard Ms. Boettner testify, she said Nuseed will ramp up as quickly as possible to meet the need. So my takeaway from that is, well, Nuseed's projections, then, must reflect their capacity, and that's why I used that chart that I just identified. I don't really see the scaleability capability in the documents I reviewed.

Q. Could you take a look at PX-56 in your binder?

A. Yes, I see that.

Q. Have you seen this -- have you reviewed this document before?

A. Yes. This is a document produced by Nuseed. It's a Credit Suisse, so an independent analyst's review of the opportunity for Nufarm, and especially within this aquaculture space.

Q. And could you turn to the page numbered 58593, ending in 58593. It's Page 23 of the document.

A. Yes, I see that.

Q. Could you look at Figure 37 on that page?

A. Yes.

Q. Please tell us what is in Figure 37.

A. This is a figure -- this is information shared by Credit Suisse about the opportunity and them reviewing Nufarm -- also Nuseed, obviously -- Nuseed's ability to capture the supply gap that we've been already talking about, and they project by 2027 that Nuseed will capture 35 percent of that gap.

Q. Is that --

THE COURT: Well...

(There was a pause in the proceedings.)

MS. SHAW: Your Honor, may I proceed?

THE COURT: Well, why do they have -- this is just based on Nuseed, it's not based on any participation in the market by Cargill?

THE WITNESS: That's exactly right, Your Honor. This is just Nuseed's projection by 2027. It's not Nuseed's projection, it's Credit Suisse, an independent analyst.

THE COURT: I understand. It's a projection of Nuseed, not by, but I understand.

THE WITNESS: Correct.

THE COURT: All right. Go ahead.

THE WITNESS: Which, by the way, is consistent with I've seen internal documents of Nuseed projecting about 30 percent of that gap.

THE COURT: 33, I think it was, or 32.

MS. SHAW: I think it was 33.7 by 2025, but who's

counting?
BY MS. SHAW:
Q. Mr. Jarosz -- I'd like to move on to the second bucket of harms identified by Mr. Jarosz.
He identified another harm to proponents' future product development. Do you recall that?
A. I do.
Q. And what is your opinion on Mr. Jarosz's opinion regarding harm to future product development?
A. My general observation, it was a little bit vague as to what specifically CSIRO and Nuseed was going to develop. Were they developing next generation omega-3 products? I didn't get a sense of that one way or the other.
And, in any event, with respect to -- as I understand the position, it is because Cargill may be in the marketplace, potentially taking sales away from Nuseed, there won't be enough money back to Nuseed and CSIRO to continue research and development and improving their product. And, to my way of thinking, a reasonable royalty is an appropriate way to put money into CSIRO and Nuseed's pocket so they can invest, if there are future product development opportunities for them.
THE COURT: Well, they'll only get that through 2025, right?
THE WITNESS: That is true, Your Honor, since that

is the expiration of Group A.

MS. SHAW: May I continue, Your Honor?

THE COURT: Yes.

BY MS. SHAW:

Q. Now, Mr. Jarosz also identified harms to proponents' customer relationships. Do you recall that?

A. Yes.

Q. And what is your view on whether Mr. -- on whether proponents will experience harm to their customer relationships if BASF and Cargill are in the market?

A. I reviewed a fair amount of information regarding customer relationships and attempts. I also had a discussion with Dr. Gromov, who testified here earlier about the fact that the existing contracts that fish feed manufacturers are signing are very short-term in nature. That's -- it has to be because of the volatility of the fish oil prices and seasonality, et cetera.

I think these two providers, Nuseed and Cargill, hope to bring stability and do away with some of that volatility. But I bring that up from the standpoint of there's going to have to be some type of education and effort on both Nuseed and Cargill's part to have fish feed manufacturers get away from their normal procedure of signing very short-term contracts for supply of fish oil, and that will take some time. And I haven't really seen any specific

customers identified that a relationship might be soured, if you will.

Q. Okay. So just in sum, under *eBay* factor 1, in your opinion, have you seen any evidence of irreparable harm to proponents if BASF and Cargill are allowed to offer their products in the market?

A. Based upon the information I reviewed, and considering Mr. Jarosz's analysis, respectfully, I don't believe that the *eBay* factor 1 has been satisfied in terms of evidence of irreparable harm.

Q. So let's look at your PDX-639 again. I'd like you to look at the second *eBay* factor.

So you see the second eBay factor is remedies available at law, such as monetary damages, are inadequate to compensate for that injury. Did you consider any evidence under this factor?

A. I did. I looked at this from two different perspectives. One is the willingness of the patentholders to license the infringed patents, and looked for evidence of that.

The second is to look at whether I believe, in my opinion, that a reasonable royalty is adequate to compensate for infringement.

Q. Have you seen any evidence relating to proponents' willingness or unwillingness to license?

A. I have. Well, certainly, initially CSIRO was willing to

enter into a collaboration agreement. I'm not sure that counts as a license agreement, but that's certainly an indication, because they needed a partner.

And then I've seen information produced by Nuseed in some of their talking-point documents that indicate that they have a willingness to license the patents.

Q. Can you take a look at PX-568?

A. Yes, I'm there.

Q. Do you know what this document is?

THE COURT: What was that number, again?

MS. SHAW: PX-568.

THE COURT: PX?

MS. SHAW: Yes, and I don't believe this document has been admitted.

THE COURT: All right. PX-568 will be admitted.

(Exhibit PX-568 received in evidence.)

MS. SHAW: Thank you, Your Honor.

BY MS. SHAW:

Q. Do you know what this document is, Mr. Napper?

A. Yes. This is a Nuseed document. I think Ms. Boettner may have testified that this is in preparation of Nuseed for investor calls, to try to update investors as to the activity of Nuseed, and it's dated September 2017.

Q. Could you take a look at the page ending in 32818.

A. Yes, I see that.

Q. And could you take a look at kind of the first set of bullets on this page, and look at the second-to-last bullet underneath that. Do you see that?
A. I do.
THE COURT: Where are we now?
MS. SHAW: Your Honor, we are at PX-568. 32818 is the page number.
THE COURT: 818?
MS. SHAW: Yes.
THE COURT: All I need is the last three numbers.
MS. SHAW: Okay. It's 818.
THE COURT: Okay. I've got it.
BY MS. SHAW:
Q. And do you see the second-to-last bullet under that first section?
A. I do.
Q. What does it describe?
A. This appears to make a statement of Nuseed, that they remain open to possible cross-license of intellectual property with BASF, which provides effective value to Nuseed.
Q. And this is one of a few documents that I've seen that talk about --
THE COURT: What do you mean by "cross-license."
THE WITNESS: Well, I presume what Nuseed means is that Nuseed would license its patents and technologies and

would, in return, receive access to BASF's intellectual property.

And there may be --

THE COURT: What are they going to do with that? They've got a different system of making their product. I don't know that their product needs anything except maybe one proprietary enzyme.

THE WITNESS: That's fair, Your Honor. So there may not be anything that BASF needs except for freedom to separate, and, in reverse, BASF has not only intellectual property -- I may be stepping out of my boundary here, but I understand BASF may have a patent in Australia that CSIRO is focused on, so there would be, in my mind, with this comment, a cross-license between the parties, with perhaps a monetary consideration, as well.

THE COURT: All right.

BY MS. SHAW:

Q. Now, when we were talking about *eBay* factors, you discussed willingness to license and also the ability to quantify monetary damages as two of the things that you looked under when considering that factor.

What did you mean by the ability to quantify monetary damages?

A. Well, it's my opinion, based upon the information I reviewed in this case, that I think a determination of a

reasonable royalty can be made, and that monetary damage, if you will, or monetary compensation to Nuseed would be adequate to compensate them for the infringement.

Q. Now, Mr. Jarosz testified that there is uncertainty around calculating monetary damages in the future. Do you agree with him?

A. I do not. I think there's information adequate to compensate Nuseed in the form of a royalty rate based upon the analyses that I performed in this case.

Q. How would a royalty rate address future uncertainties?

A. Well, the royalty rate structure that I have in mind would be a percentage of net product sales, the end sales of Cargill, and that, in turn, if there's a percentage of the revenue, takes away some of the pricing uncertainty.

Both parties appear to be a little hesitant on what the prices are going to be, even though they're tied to fish oil existing in the market, and my takeaway some of the uncertainty of those pricing question marks, if you will.

Q. Now, if we could look back at PDX-639, I'd like to look at the third factor under the *eBay* factors, which is the balance of hardships.

Did you consider this factor in your analysis?

A. I did.

Q. And what did you consider?

A. Well, I recall Mr. Jarosz's testimony that he believed

there was more emphasis on the Nuseed side of the balance of hardships, in terms of the ramifications, if you will, of patent and infringement of patents, et cetera, and he saw less volume if, for lack of a better way to describe it, on the Cargill side. That's a judgment call by Mr. Jarosz.

I actually went a little bit more to how much each of these parties invested in this particular product to be able to take a less judgment, more monetary look at that. And on the CSIRO side, I found that there was about -- last I could document, about 100 million invested by CSIRO and Nuseed.

And then on the BASF/Cargill side, we heard testimony from Dr. Andre even today that I think they're up to 200 million, and Cargill is up to about 65 million. So, clearly, both parties are investing heavily in this project, but to suggest that one -- because there's not as much chatter about this project in the Cargill information, one, I didn't see that; and, two, I think that's belied by the fact that both companies are spending in this space.

Q. Could we look again at the PDX-639? And I'd like to turn your attention to the fourth and final factor under the *eBay* factors, and this is the public interest.

Did you consider any evidence under the public interest factor?

A. I did.

Q. And what did you consider?
A. I considered information connected to the public interest in terms of three different aspects, one being an environmental aspect, the second being ocean impact, and the third being farmers.

So with respect to the environmental, and somewhat combined with the ocean, obviously, allowing Cargill and Nuseed, once the products start coming into the marketplace, to be able to supply their omega-3 fish oil, would tend to put downward influences, hopefully, on what I've heard called the hunting of the anchovies in the ocean, and the boats, and the exhaust fumes, to get down to the nitty-gritty into the environment, that would hopefully put less pressure and perhaps a reduced environmental impact of those activities.

I also am quite familiar with Cargill's investment in the local farming community in Montana. I believe they built a building there for processing, and it holds community events, and it seems that the community connection that Cargill has established there is of public interest, as well.
Q. Now, Mr. Napper, during Mr. Jarosz's direct examination, he testified that if an injunction issued, Cargill could still enter the market because they have the ability to come and negotiate a license with proponents.

Did this testimony impact your injunction analysis?
A. Actually, it did, yes.

Q. Could you tell us how?
A. Yeah -- sorry, Ms. Shaw.
And the reason is that if Mr. Jarosz is of that opinion, then that shows that the proponents have a way to establish a royalty rate and a royalty payment to be paid to them that's quantifiable, and, therefore, that would be a much better path than the fairly extreme relief of injunction.
Q. So, in summary, Mr. Napper, what is your ultimate opinion as to whether an injunction should issue in this case?
A. I don't believe that's the remedy that should be issued in this court or in this case. I believe that a reasonable royalty is the appropriate approach.
Q. So I'd now like to shift topics to that reasonable royalty, and I'd like to begin by discussing Mr. Jarosz's proposed reasonable royalty rate.
MS. SHAW: Could we please look at Jarosz slide 16.
BY MS. SHAW:
Q. What is your understanding of the information we see here, Mr. Napper?
A. So my takeaway here is that Mr. Jarosz used two different collaboration agreements, the CSIRO/GRDC/Nuseed agreement and the BASF/Cargill collaborative agreement, in order to calculate what he determined to be a reasonable royalty rate.
He then shows on this chart a fairly high rate for

Nuseed lost profits on diverted sales of 49 percent.
Q. And his reliance on the CSIRO/GRDC/Nuseed license agreement, do you think that's appropriate?
A. I do not think that's appropriate. I think it's an agreement to consider, but I think the agreement has to go through a number of adjustments in order to reflect the asserted patents' value in that agreement.
Q. And what about the BASF/Cargill license? Do you think Mr. Jarosz's reliance on that agreement was appropriate?
A. I think that's even -- that's further removed than the CSIRO/GRDC/Nuseed agreement because there's been no study of the BASF intellectual property contributed, if it's technologically comparable, and it also suffers from a disconnect in terms of regulatory responsibilities in that agreement.
Q. So let's first talk about proponents' agreement, the CSIRO/GRDC/Nuseed agreement. Why do you think these agreements are not appropriate without an adjustment?
A. Because as I reviewed the agreement, it involves a number of intellectual property, a fairly significant amount of intellectual property, that CSIRO is committing to this collaboration, in addition to the infringed patents.
Q. Could we look at PDX-610.
Mr. Napper, could you describe what we see here?
A. Yes. This is my attempt to summarize a fairly voluminous

agreement between these parties, but what I show here is what I determined from the agreement that CSIRO is contributing, which is technology and IP related to omega-3 LC PUFAs, as well as funding.

Nuseed is doing canola breeding, and, importantly, Nuseed is doing the deregulation part of that agreement. And then GRDC is committing, also, intellectual property, as well as funding. And so that's the green arrows, if you will, going into the collaboration agreement, and then what each party gets in return is reflected on these percentages.

It's important, two things, to note. The percentages were determined by the contribution of funding by each of these companies. So there wasn't an evaluation of the intellectual property of CSIRO that they were contributing. It was, essentially, based upon the so-called cost approach to intellectual property but based upon the funding of each of these companies as to how the split occurred, so it's not linked to the CSIRO intellectual property directly.

And the second is these percentages are a total of 25 percent for CSIRO and GRDC, and I think we all now understand that net sales is a misnomer. It's not the end product sales, but it's actually something less than that.

Q. Could you take a look at Mr. Jarosz's slide 14, if you could pull that up.

Did you hear Mr. Jarosz testify about this slide?
A. Yes. This reflects his calculation of how he derives a 12.4 percent royalty rate from this agreement.
Q. And do you agree with the numbers he has on his chart that's shown here in slide 14?
A. I do not. I think it's incorrectly calculated.
Q. And why is that?
A. For at least three reasons: The first is that Mr. Jarosz relied upon an early 2018 Cargill projection. I think there's been comment about that here in court. And the closest projection to the hypothetical negotiation between these parties is a January 2019 Cargill projection where Cargill projects a little bit less in revenues. So I think that is the most reliable place to start.

Further, Mr. Jarosz -- for the blue bar, if you will, Mr. Jarosz adjusted the commodity canola value. In the actual Cargill projection, it's $850 per metric ton. He used a figure of $815 per metric ton. I forget what his source was, but it wasn't from the actual document and projection.

And then the orange bar is helpful. The orange bar is the incremental cost of how much it cost to develop on a per-metric-ton basis the omega-3 fish oil-based canola, if you will, and commodity canola, because that's called out for in the agreement between these parties.

And rather than accept Cargill's projection of how

much incremental cost there is, how much more it is to make the omega-3 canola, fish oil canola, he accepted Nuseed's estimate that it would only take 15 percent more to make omega-3 fish oil canola oil, as opposed to what Cargill believes it's going to cost twice as much. You heard Dr. Gromov testify to that.

And then lastly, I adjusted this number to reflect the term of the patent expiration dates of the Group A patent because these numbers are taken out to 2028, but the patent expires in 2025.

Q. I believe you testified that there is a discrepancy in how much incremental cost comprises total costs between Nuseed and Cargill.

What is your understanding of what Nuseed believes its incremental cost to be of the total cost of the goods?

A. So to make my math easy, if you assume Nuseed says if it's $100 to make regular canola oil, non-omega-3 fish oil, it would be $115 to make the omega-3 fish oil canola oil. So that's about 15 percent higher. That's what was provided to Mr. Jarosz as an estimate by Mr. Zacharias and Mr. Thomas.

Cargill, on the other hand, you heard Dr. Gromov testify earlier today that if it's $100 for the commodity canola, it's $200 for the omega-3 canola oil product.

Q. In your review of the materials in this case, did you see any documentary evidence supporting that the costs of

manufacturing omega-3 canola are only 15 percent of the total cost of goods for these products?

A. I've seen no evidence that would be consistent with that representation.

Q. Have you seen any documentary evidence supporting Cargill's projected incremental costs?

A. I would love to go back to the spreadsheet for Cargill -- I'm just kidding -- based upon His Honor's comment.

But there are tabs within that spreadsheet that actually identify the cost of the commodity canola oil versus the omega-3 canola oil, and it's actually even higher than twice as much. So there is documentation supporting Dr. Gromov's observation and testimony.

Q. Could you take a look at PDX-640?

Can you tell us what we see here?

A. Right. What I see here -- a bit dramatic. I apologize for the Xs. But what I've done here is I've adjusted for the four things I just talked about, that I won't repeat. But I've reflected, essentially, the four adjustments I think are appropriate, using Mr. Jarosz's approach to calculate a royalty rate, in order to reflect these changes I just identified.

Q. And could you take a look at PDX-641?

What do we see here?

A. So at end of the day, using these four changes, staying

with the four corners of the Excel spreadsheet, for the most part, with the 2025 cutoff, I've recalculated the royalty rate using Mr. Jarosz's actual approach to be not 12.4 percent but 3.8 percent.

Q. And in your opinion would that lower amount, the 3.8 percent, be the appropriate royalty in this case?

A. No. It still suffers from what we talked about before, which is the CSIRO intellectual property that was put into the collaboration agreement, still has a lot more benefits and a lot more advantages, if you will, of value. I couldn't assign a specific value to that, but this is too high because of that, because I have to go down to the actual patents that are infringed.

Q. Could you take a look at PDX-617?

What do we see here?

A. So this is an attempt for me to just identify all the different rights that are part of the CSIRO/GRDC/Nuseed agreement, and each of these bubbles, if you will, represents a category of intellectual property whose rights were contributed by CSIRO to this collaboration agreement, including rights to -- exclusive rights to patents.

Interesting enough, Nuseed has the ownership of the elite event. In the case of BASF/Cargill, Cargill -- it's my understanding BASF retains ownership of the elite event and various other intellectual property rights. All of these

have some element of value and -- but I wasn't able to assign a specific amount to those.

Q. And how does what we see here compare to what BASF and Cargill would receive under the hypothetical negotiation? And I think we have a slide on this.

A. Yes. BASF and Cargill would only receive what is reflected here in the orange, which is the nonexclusive license to the Group A patents, so a much smaller subset.

Q. In your opinion does using the agreement, the agreement that we see here as the royalty rate appropriately account for BASF and Cargill's contributions to their commercial product?

A. I don't believe it does reflect that.

Q. Why is that?

A. Because I think there's a lot of effort, as we've heard Dr. Andre testify to and Dr. Gromov, of all the different efforts that BASF went through, as well as Cargill, and so those have to be taken at least into account.

Q. Now, Mr. Jarosz also relies on a second agreement in identifying his reasonable royalty range, and that's the agreement between BASF and Cargill. Do you recall that?

A. I do.

Q. And do you have an opinion as to whether that agreement is comparable for purposes of determining a reasonable royalty?

A. That agreement is one step further removed because it's -- it has not been compared from a technological comparability standpoint. What did BASF contribute and what intellectual property did it contribute and how does that compare to the CSIRO patents that are at issue here? So no assessment has been done of that so I don't think it's comparable.

Q. Could you take a look at PDX-615.

Can you describe what we see here?

A. Yes. This is just a summary, a short summary I put together as to BASF, its contribution to the collaboration and Cargill; and one to note is the fact that in this case BASF is conducting the regulatory efforts.

So if you contrast that with CSIRO, CSIRO is not conducting the regulatory efforts; their partner Nuseed is. This one is a little bit reversed.

Q. Now, Mr. Jarosz calculates the reasonable royalty rate under this agreement as 13 percent. Do you agree with this?

A. I do not.

Q. Why is that?

A. Because what I just touched on it, what has to be adjusted in that calculation is, among other things -- but at least you have to account for the fact that BASF is getting reimbursed by the 40 percent EBIT split for their regulatory efforts, and so that has to be removed from the calculation,

and that's what I've done.
Q. Can you take a look at PDX-616.
Can you describe what we see here?
A. Yes. This, essentially, is my adjustment to the 13 percent calculated by Mr. Jarosz from the BASF/Cargill agreement. And what is done is I subtract the BASF regulatory efforts in order to compare apples to apples with the CSIRO/Nuseed agreement. And if you deduct 92.3 million from the take, if you will, of BASF, that reduces the numerator in the fraction, and, therefore, the royalty rate goes -- the effective royalty rate goes down. It's not a royalty rate but it's more of a split. And so once you make that adjustment, it's down to 3.2 percent.
Q. And this adjusted rate of 3.2 percent, is it your opinion that that is a proper future royalty rate?
A. No. It still, unfortunately, suffers from the same challenges as CSIRO in that there's other intellectual property that BASF contributed here, and other benefits, but I couldn't quantify those.
Q. Do you recall that on the upper end of his reasonable royalty range Mr. Jarosz had indicated a 49.1 percent royalty rate? Do you recall that?
A. I do.
Q. Do you agree with the high end of his reasonable royalty range?

A. I do not. No lost -- first of all, no sales have occurred, so no lost profits. But even for future, a lost profit analysis wasn't really performed by Mr. Jarosz to determine that somehow 49 percent royalty would be appropriate. It's essentially baking in a lost profits claim in a reasonable royalty construct, and I don't think that's appropriate.

Q. Why do you say that the 49.1 percent range is essentially a lost profits analysis?

A. Because the way Mr. Jarosz calculated that is he essentially took all of CSIRO's Nuseed's profit percentage, which is 49.1 percent that we saw earlier in the trial, and just that's his rate. It's just a profit number, and so that is, in essence, a lost profits claim.

Q. So you testified earlier that you did think that an ongoing reasonable royalty would be an appropriate remedy for future damages. I'd like to shift and talk about that a little bit more and what you think that appropriate rate might be.

Why do you think an ongoing reasonable royalty is appropriate here?

A. I think based upon the construct of the market and the construct of what I've talked about before with this supply, with this opportunity for both of these companies to take advantage of the supply gap in the marketplace for fish oil,

I think that a reasonable royalty rate would be the appropriate construct adequate to compensate CSIRO for infringement and let them go out, and with through Nuseed, continue to commercialize and hopefully have product sales in the future.

Q. Could you take a look at PDX-604.

Could you describe what we see here?

A. Yes. These are commonly known as the *Georgia-Pacific* factors, which is a seminal case in terms of factors to consider for establishing a royalty rate, and many of these are reflected in my own experience in helping clients to license their intellectual property.

So these are not, you know, unusual in that regard. It's really the factors to consider in establishing a rate. I did review every single one of these factors in my report, but I think some are much more relevant to the inquiry than others here.

Q. Which of the factors do you think are more relevant?

A. I think the royalties paid for similar patents is particularly relevant. That would be *Georgia-Pacific* factor number 2. And I've also considered other aspects like commercial relationship, et cetera.

Q. Let's take a look at PDX-623. Could you describe what you see here?

A. Yes. This is my opinion as to what a future royalty rate

would be. Based upon the infringed Group A patents, they would be a running royalty of 1.4 percent times the end product sales of Cargill.

THE COURT: Times -- you're applying that percentage to gross sales?

THE WITNESS: That's correct, Your Honor.

THE COURT: How did Mr. Jarosz?

THE WITNESS: Jarosz.

THE COURT: What was he applying his percentages to?

THE WITNESS: He also converted. He converted that 25 percent to a 12.4 percent, and he also applies it to the gross sales.

THE COURT: Gross sales?

THE WITNESS: Yes. So those are comparable, in terms of just what they're applying it to.

THE COURT: Well, it's a lot easier to apply it to gross sales than it is to net because -- well, for obvious reasons.

THE WITNESS: I couldn't agree more, Your Honor.

MS. SHAW: May I proceed, Your Honor?

THE COURT: Yes.

BY MS. SHAW:

Q. Just one question. You see that there's no rate provided for the Group D patents. Why is that?

A. Because as I explained before, it's my understanding that

the BASF elite event is the infringing product, for lack of a better way to describe it, and there are no sales of that, and that's not going to be used by Cargill on a go-forward basis in any kind of commercialization. So I couldn't really determine what an appropriate royalty rate would be for infringement.

I do need to clarify, though, the 1.4 percent is only part of the royalty for the Group A infringed patents. I also believe that an appropriate amount of 1.235 million should be paid in a lump sum. So those two are added together.

THE COURT: How did you come up with that number?

THE WITNESS: That number is the payments made by BASF under the BASF/University of Hamburg agreement. That's how much they paid to the researchers and the scientists. That ultimately resulted in the '228 patent, among other patents, that BASF owns. So I believe that's a technologically comparable agreement, and it indicates the value of certain desaturases and elongase enzymes, as well as Acyl-CoA and the bifunctional.

BY MS. SHAW:

Q. If we could look at PDX-604 again. Did you look at G-P factor 1, royalties received by the patent owner in coming up with your reasonable royalty?

A. Yes, I considered that. Like I said, I considered all

these factors. We've already discussed the CSIRO/GRDC/Nuseed agreements. I don't think, for the reasons I've already stated, that that's a reliable agreement, but, essentially, I certainly considered it and made appropriate adjustments.
Q. So how did you go about identifying what royalty payments, what appropriate royalty payments to look at in coming up with your agreement -- your rate? I'm sorry.
A. So I inquired -- in my discussions with the BASF folks, I inquired as to various agreements, collaboration agreements or research agreements that they had signed periodically in connection with their work on their elite event, and through that discussion, three -- I looked at many. There was probably seven or eight, if you will, that I think I summarize in my report, but three came to the forefront as particularly relevant in terms of BASF's efforts to create their elite event. And those were the University of Hamburg, Bioriginal, and University of York.
Q. Did you talk to Dr. Andre in doing this?
A. I did, yes. I had a discussion with him, extended discussions -- it wasn't just one, but a couple -- to try to understand -- in fact, the chart we saw with all the vectors, he went into, what I would say, excruciating detail as to all the different efforts that BASF went through, all the technologies they used. But at the end of the day we came to kind of an understanding of what it was particularly relevant

to what the asserted patents at that point in time were claiming.

Q. And did you talk to Dr. Murphy in connection with this?

A. Yes. Once I had talked to Dr. Andre, I then discussed with Dr. Murphy and asked him to do a technologically comparable analysis of some of those -- not the agreements themselves but the intellectual property within the agreements.

Q. What types of comparability analysis did you and Dr. Murphy conduct?

A. So Dr. Murphy did the technology -- technologically comparable analysis; are the intellectual property and the patents and patent applications that emerged from those agreements comparable to, from a technical standpoint, to the infringed patents at this stage?

He conducted that, and then I conducted an economic comparability. I looked at whether, first and foremost, do those particular intellectual property licenses by BASF relate to the elite event, and ultimately the -- what would be sold into the marketplace. I confirmed that those do involve the same product.

And I looked to essentially a running royalty rate in the construct of two of those agreements, that they would be paid on the end product. So I conducted, among other things, fairly exhaustive analysis of the economic

comparability.
Q. So I believe one of the three agreements you identified was the Hamburg agreement, correct?
A. Correct.
Q. Let's look a little bit more closely at that agreement. Can we pull up PX-451.
A. Okay.
Q. Now, is this the German language document that you received before your report?
A. It is. This is the document I received before my report.
Q. And at the time you issued your report, did you have an English translation of the document?
A. I did not, no.
Q. Okay. Could you please put up CX-1031.
Have you seen this document?
A. I have. This is the English -- this is the University of Hamburg agreement translated into English.
Q. Okay. Now, do you understand this translation to be of the Hamburg agreement?
A. Yes.
Q. Okay. Do you have an understanding of what BASF paid under this agreement?
A. I do. It's my understanding that BASF paid on a per annum basis, an annual basis three different payments totalling -- and also paid for a machine. I was going to try

to pronounce what the machine was, but "Chromograph" machine, I think. So combined all in, it was $1.235 million. That's, by the way, adjusted for the payments made in 1998 to current 2018 dollars.

Q. And under --

THE COURT: Did you look at how much they paid the other collaborators?

THE WITNESS: The other collaborators on other agreements?

THE COURT: The University of York and whoever that was?

THE WITNESS: I did, Your Honor. It's a good question. So there were some minor payments on the University of York in a lump sum to the scientists, but in the University of York situation, it appeared that the intellectual property was more linked to the running royalty that's in that agreement, which is .4 percent.

So I did not include, although it could be included, it's a pretty minor amount, some payments to the researchers because it struck me, in looking at the agreement, that the .4 percent running royalty in the University of York was more related to the intellectual property, what arose out of the collaboration.

THE COURT: Can't you translate that into a payment? I mean, why shouldn't they get all three of their

collaborations? Why should it be just one?

THE WITNESS: It's fair, Your Honor. The reason, the University of Hamburg does not have a running royalty. So that is all payments made to the --

THE COURT: I know, but --

THE WITNESS: Yes.

MS. SHAW: Could we look at PDX-625 just to address Your Honor's question.

THE COURT: Well, I mean, I think you can put some value on the running royalty if you wanted to be realistic about -- I mean --

MS. SHAW: May I proceed, Your Honor, with some questions that I hope will address the questions you're raising?

BY MS. SHAW:

Q. Could you describe what we see here in this slide?

A. Yes. This is a summary of the payments by BASF by contract to these three entities for their work on technologically comparable intellectual property. So that's what I'm showing here, is the 1 percent to Bioriginal, .4 percent, and the 1.235 lump sum, for lack of a better word, payment to University of Hamburg.

Q. And how does this compare to the royalty rate that you have proposed in this case?

A. So I added all of these together; so the 1 percent to

Bioriginal plus the .4 percent to University of York, or Amaethon, and then the University of Hamburg did not have a running royalty, so that was all payments to them in 2018 dollars of 1.235 million.

THE COURT: So what you're saying is BASF is going to have to keep paying these royalties, but that doesn't put any money in the pocket of the owner of the patents. That's just an additional cost to BASF, but it doesn't compensate the owner of the patents in any way?

THE WITNESS: Do you mean the owner of the patents being the infringed patents here?

THE COURT: Yeah.

THE WITNESS: Yes. So what this is, is a comparables approach, a market approach. Because the intellectual property from these collaborations between BASF and these entities and what BASF paid, they're technologically comparable to what the asserted patents are, so you're exactly right, Your Honor, then, in my opinion, BASF would have to turn around and pay 1.4 percent on future sales to CSIRO on top of what they're going to have to pay to these collaborators. In other words, if BASF --

THE COURT: They're going to have to pay 1.4 percent to the owner of the patents and 1.4 percent to these other collaborators?

THE WITNESS: Better said than I just did, Your

Honor. You're exactly right; that's what is going to transpire.

THE COURT: Yeah, but my point is the 1.4 percent that they pay to the other collaborators doesn't put any money in the pocket of the owner of the patents which have been infringed.

THE WITNESS: Well, it does in terms of the royalty rate that derives from the analysis because BASF --

THE COURT: Well, I didn't hear you mention these in your analysis of how you arrived at the royalty rate.

THE WITNESS: I'm sorry, Your Honor, then I may have disconnected you. This is the basis for my royalty rate, and it is based upon these agreements having comparable technology. So BASF pays 1.4 percent when they start making product on those products, and because they're technologically comparable, that's kind of the market price of that technology. I think that BASF would end up paying 1.4 percent, as well, to the owner of this --

THE COURT: Well, I mean, Cargill is going to pay 1.4 percent to the owners of the patent, but you're saying that BASF, out of their share of the revenues from sales, is going to pay 1.4 percent. Is there any reason why those two numbers are the same?

THE WITNESS: Yeah, interesting. That's a good point. I don't believe that it would just be on BASF's 40

percent take from the BASF/Cargill.

THE COURT: No, I don't think it's going to be on their take. I said they have to pay it out of their take.

THE WITNESS: Yes. Yes.

THE COURT: They're going to pay 1.4 percent of the sales out of their take.

THE WITNESS: I --

THE COURT: I mean, that doesn't mean that they pay 1.4 percent of their take.

THE WITNESS: Yes. Okay. Sorry, Your Honor, I misunderstood, but you're right. I think we're saying the same thing; that is, 1.4 percent of a Cargill sale of $100, whatever that is, that's $1.40 that's going to be paid by BASF to these individuals. I assume it's going to be BASF, but, more importantly, it's 1.4 percent that the infringed patent owner will get 1.4 percent, plus an upfront of 1.235 million.

THE COURT: Well, I'm not clear on one thing. So the way you came up with your running royalty is you're, in effect, saying that they've got to pay the same thing to the patent owners as they paid to their collaborators?

THE WITNESS: That's correct. It's using the market approach to valuing intellectual property. It's kind of like the comparable approach.

THE COURT: Well, how does that -- I mean, these --

their collaborators didn't suffer any damages, and they're getting 1.4 percent even though they didn't suffer any damages.

THE WITNESS: That's an excellent point, Your Honor. So -- sorry.

THE COURT: So it seems to me that part of the damages suffered by the patent owners is not included in your formula.

THE WITNESS: Well, if I could, there's two adjustments I make that would have increased this royalty rate to the owners of the infringed patents, and then there are two influences that would have decreased the rate as compared to what these collaboration agreements have.

The two increases are exactly that, that they now have been found to be infringed. So that rate -- any of the intellectual property in these agreements have not found to be infringed or, you know -- a subset of infringement and validity, so it's an upward.

The other upward influence is competition. So while I don't think it's as head to head as Mr. Jarosz believes, in terms of these two companies, I think there's some level of competition so that would have an upward influence because there's no competition with these collaborators and BASF. So both of those had to go up.

On the flip side, there's two downward influences.

One is for -- on any of these agreements, BASF got rights to more intellectual property than just the specific patents that were used in the BASF elite event for the enzymes, the desaturases, et cetera.

So they got -- BASF got more rights. So when you compare that to BASF only getting rights to the infringed patents, that should have a downward influence on this rate. The second downward influence -- these are all exclusive rights to BASF --

THE COURT: Well, if they had the patents, they wouldn't have needed the collaborators.

THE WITNESS: If who had had the patents, Your Honor?

THE COURT: If BASF had owned the patents, they wouldn't have needed any collaborators.

THE WITNESS: Arguably, I can see that. In other words, if BASF had the infringed patents, they would -- they -- I'm not sure whether they would have gone out and collaborated with these other folks. It seems like they do a lot of things, but it could be -- that could be the scenario, sure, but in which case they would be paying -- BASF would have saved money, right. They would have paid the 1.4 percent to the owner of these patents, based upon this comparables approach, and they wouldn't have to pay this to these other collaborators.

THE COURT: Well, that's one way of looking at it.

What is the other downward factor?

THE WITNESS: The other downward factor is BASF got exclusive rights to these -- any intellectual property in these agreements, and here BASF doesn't get exclusive rights to the infringed patents.

THE COURT: They don't get exclusive rights?

THE WITNESS: No, they do not, not in the asserted patents. CSIRO is free to go out and try to license other folks with these patents.

THE COURT: So you're assuming that they wouldn't get exclusive rights?

THE WITNESS: I am assuming that they would not get exclusive rights. That's fair.

THE COURT: Well, I don't know what value there is to that -- to the patent owner, because -- well, I don't know how long it would take some third party to get to produce anything before the patents expire.

THE WITNESS: Yes. Yeah, I think it's an excellent point, Your Honor. There's not much value there for CSIRO retaining rights to be able to license somebody else.

THE COURT: All right.

MS. SHAW: May I continue, Your Honor?

THE COURT: Well, how much longer are you going to be?

MS. SHAW: I think you've done a great deal of my job for me, Your Honor. So I think it will just be -- it's going to be less than ten minutes.

THE COURT: All right.

BY MS. SHAW:

Q. I did want to talk to you a little bit about something about the Hamburg agreement.

I believe you said that you received the document in German before you issued your report; is that correct?

A. Yes.

Q. And you don't speak German, do you?

A. I do not.

Q. So how did you know what the terms of the Hamburg agreement were?

A. I had a colleague of mine who is German, German native, and he reviewed the compensation section of the agreement. Again, Dr. Andre had kind of explained to me the '228 patent and had emerged from that collaboration, so I knew generally what the agreement was about, but I had him interpret the compensation part of the agreement.

Unfortunately, he did not pick up on the fact that it was a payment per annum for the three-year term of the agreement. So originally I thought it was a one-time payment of around $400,000 and it turned out that, once I got the English translation, it was three times that, because it was

an annual payment so I adjusted my rate accordingly.
Q. And does the 1.235 million as the upfront payment in your ongoing royalty reflect that adjustment?
A. Correct.
Q. So I believe you said that the '228 patent comes out of the Hamburg agreement?
A. That's my understanding, yes.
Q. And what is that understanding from?
A. That comes from Dr. Andre.
Q. Okay. Let's take a look at PX-532. Can you identify this document?
A. Yes. This is the agreement between BASF and the University of York, also known as Amaethon.
Q. Do you have an opinion as to whether this agreement is economically comparable to the hypothetical negotiation?
A. I believe that it is, yes.
Q. And what did BASF pay under this agreement?
A. BASF agreed to pay some minimal amounts of upfront fees for researchers, if I recall correctly, but then also agreed to pay a .4 percent rate on the commercial sales of any product that emerged from the use here.
Q. And what did BASF receive in exchange for that payment?
A. They received, I believe, a number of intellectual property, some patent applications, including one in particular. It was a patent application that had relevance

to the elite event.
Q. Okay. If you could, turn to Annex I, which is at BASF 197251 of PX-532. Can you tell us what you see there?
A. Yes. These are -- this is attached to the Amaethon agreement with BASF, and this lists out the intellectual property rights that BASF got access to by virtue of signing this agreement and committing to pay a .4 percent royalty rate in the future.
Q. And do you know what's identified there in Section B?
A. Section B is a patent application that I looked at and reviewed and identified another patent application that was -- I had Dr. Murphy take a look at, and that's one of the patent applications and/or patents that he looked at and tracked that to the elite event.
Q. Could you take a look at PX-416?
Can you identify what you see here?
A. Yes. This is the patent application, the '921 patent application that Dr. Murphy analyzed for technological comparability and identified as tracking to particular desaturases and enzymes within the elite event.
Q. How do you know that the '921 patent publication resulted from the Amaethon license?
A. I used a tool I often use in any valuation work -- it's pretty simple -- Google patents, and you can input either a patent application or a patent number, and it allows you to

see what patents emerged from a particular patent application. Sometimes there's divisional patents, et cetera.

You can also find out, you know, cites, citations, and going back and looking at other patents. I didn't really use that for this purpose, but I often use this tool to help private equity companies. If they want to figure out, just from a high level, who's patenting in this space, we're going to buy this company that has this patent application, who else has cited to that patent application, and should we go look at that company to maybe buy them?

It's just a tool I use fairly regularly in my work, and I identified, via that tool, this particular patent publication, and then, working with counsel, as well, provided that patent publication to Dr. Murphy to review.

Q. Could you take a look at JX-65, and could you turn to the page BASF 15753.

Can you identify this document?

A. Yes. This is a document that's embedded within the BASF/Cargill commercial agreement, and it is the Bioriginal license agreement between BASF and Bioriginal.

Q. Is this agreement economically comparable to the hypothetical negotiation?

A. It is. It involves the same products at issue, the royalties going to be paid on a commercialized product down

the road, and, of course, the technological comparability was assessed by Dr. Murphy.

Q. And what did BASF pay under this agreement?

A. BASF -- they haven't paid anything, because there's been no sales, but BASF agreed to pay 2 percent on the end product of Cargill. However, there's what is called a royalty stacking clause in this agreement; whereby, if BASF has to end up paying royalties to some other entity, that that royalty rate will be reduced from 2 percent down to 1 percent, essentially. And so my takeaway from this is 1 percent, because BASF sounds like they're going to have to end up paying a royalty to the asserted patent owner in this case, and there's a reduction that occurs.

So that's called -- they don't quite know all the technology they need, a company, so they say, If we have to pay somebody else, your royalty rate is going to go down.

Q. And what rights did BASF receive under this agreement?

A. A fair amount of patent applications, if I remember correctly, and what emerged from those patent applications were two -- more than two issued patents, but two in particular were relevant. Let's see if I'm good enough to remember. The '436 and the '492, I believe.

Q. And how did you determine that those resulted from this license?

A. I determined that, again, looking at all the different

patent applications that were identified in this agreement, I did a Google patent search, and checked that with counsel for BASF and Cargill, and then provided a subset of those to Dr. Murphy to look at and review for technological comparability.

Q. Could we put up PX-927 and PX-417 side by side.

This is the '432 and '469 patents. Are these the patents that you identified coming out of this agreement?

A. Yes. Again, there was other intellectual property that was licensed to BASF, but these specific patents were of particular interest, based upon Dr. Murphy's work. And I bought the patent numbers wrong. It was '432 and '469.

Q. And so, in sum, out of these agreements, the Hamburg agreement, the Amaethon agreement, and the Bioriginal argument, how many patents and patent applications came out of it?

A. Out of the Bioriginal agreement?

Q. Out of the patents that you identified, how many patents did you identify as relevant for your analysis coming out of those agreements?

A. One was a patent application with the University of York, and then there were three others.

Q. Three patents?

A. Three patents. Sorry.

Q. And was that the '228 patent, the '432 patent, and the

'469 patent?
A. That's correct.
Q. Okay. Now, Mr. Napper, you do not have a technical degree, do you?
A. I do not.
Q. So how are you able to assess the technological comparability of the technology in these agreements?
A. As I often do in these matters, I look to the technical experts, who have that background, and I ask them to perform a technological comparability analysis and to provide that to me so that I am assured that they have technological comparability.
Q. Do you have an understanding of whether the patents, the three patents and patent application we discussed, are technologically comparable to the Group A patents?
A. That's my understanding of Dr. Murphy's -- the conclusion of his analysis; that they are technologically comparable and actually track to much of the enzymes, as well as the Acyl-CoA and the bifunctional enzyme within the BASF elite event.
Q. And could we look at PDX-625?

Can you describe this again to us and tell us how this compares to your proposed royalty rate?

THE COURT: He's already done that.

MS. SHAW: Okay. Your Honor, then I pass the

witness.

THE COURT: All right. When we interrupt somebody's testimony in the middle, so to speak, my instructions to the witness are that you cannot discuss your further testimony with anyone, attorneys or otherwise, nor should you consult any other source of information. The idea is that you will return to the stand with exactly the knowledge that you have right now when you leave it and not try to further educate yourself about further testimony.

THE WITNESS: Thank you, Your Honor. I understand.

THE COURT: You can step down.

THE WITNESS: Thank you. Have a good evening.

(The witness stepped down.)

THE COURT: All right, counsel. Is there anything before we adjourn?

MS. SHAW: Nothing from us, Your Honor.

MR. SUNG: No, Your Honor. Nothing.

THE COURT: All right. Well, I'll see you tomorrow morning at 10:00.

(Proceedings adjourned at 5:47 p.m.)

CERTIFICATION

I certify that the foregoing is a correct transcript from the record of proceedings in the above-entitled matter.

_____/s/_____

Carol L. Naughton

November 5, 2019